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May 15, 1948
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Washington Highlights

If President Truman should decide to veto the tideland measure after passage by the Senate, there probably would be more than enough votes to override the Chief Executive.

Sponsored by Representative Chadwick, Republican of Pennsylvania, the bill was sent to the Senate, after the House voted impressively 257 to 29 to override the Supreme Court decision and restore to the states ownership of oil-rich tideland and other submerged areas.

Opposition to the legislation passed by the House was voiced by the Department of Justice, Interior and National Defense. The President vetoed similar legislation two years ago and the House sustained the veto.

The ruling of the High Court affected only properties on the Pacific Coast. Nevertheless, House supporters of the bill contended that the decision placed in jeopardy ownership of all submerged lands.

Ownership of states to their tidelands was unquestioned for more than 150 years until former Secretary Ickes and former Senator Nye challenged state rights.

An interesting sidelight on the issue recently was a claim that Indians own a major portion of California submerged lands.

The claim was advanced by former U. S. Assistant Attorney General Littell on behalf of the southern bands of Mission Indians "and other bands of individual Indians of California similarly situated."

Littell filed a petition to intervene in the Supreme Court case in which the court ruled that the Federal Government has paramount rights to California offshore lands between low water-mark and the three-mile limit.

As legal representative of the Indians, Littell asked the court to bar the Federal Government from making any disposition of the offshore lands and to enjoin any and all trespassers.

All-time record supplies of oil will be available to the country during the year ahead, but from all signs the race to satisfy the tremendous increase in consumption will be close.

The American Petroleum Institute's national oil policy committee has estimated an average of 6,025,000 barrels daily would be available for domestic consumption in the 12-month period beginning April 1, 1948.

Max W. Ball, oil and gas director for the Interior Department, foresees no shortage of petroleum products in the United States as a result of the European Recovery Program.

He told the American Association of Petroleum Geologists meeting in Denver that of the 987,000 barrels of oil products needed daily by the Marshall plan nations, only 95,600 barrels will be exported from the United States, according to reports received here.

The oil and gas executive explained that the participating countries themselves will produce 38,900 barrels daily, with the balance coming from British, Dutch and American production in the Middle East and Caribbean districts.

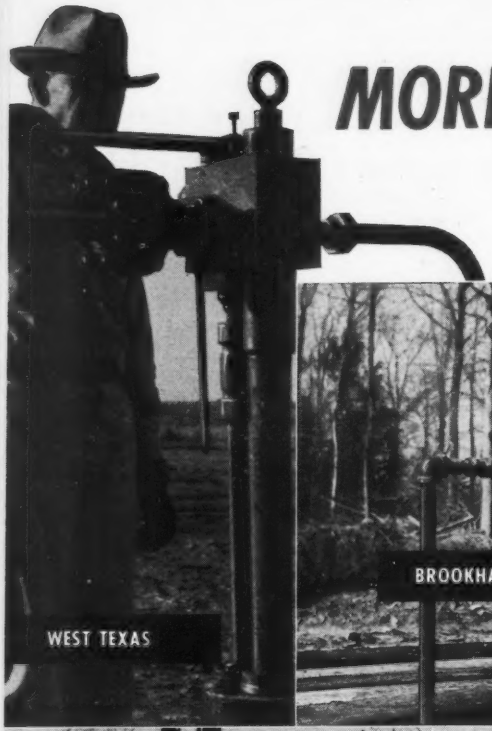
Taking issue with reports that the program would serve to supply Europe better than this country, Ball pointed out that but little oil was used for heating purposes in Europe and that all countries have strict rationing of petroleum products, except Switzerland and Portugal.

A tabular listing of all wells drilled for oil and gas in Utah has been published by the U.S. Geological Survey. Shown in the compilation is the locations, counties, fields, well numbers operators' names, elevations, and surface and bottom-hole geologic information. The publication also lists depths of producing formations, total depths, and present status of some 550 wells.

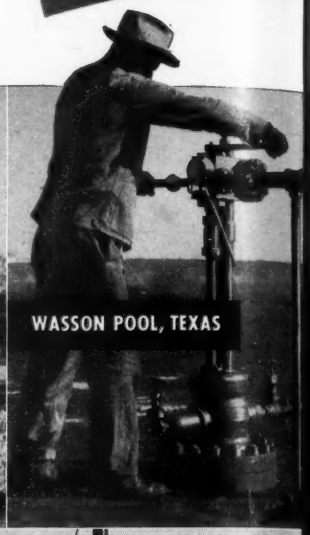
Strong indications of the existence of salt domes, some of which may be oil-bearing, from 20 to 75 miles off the Louisiana-Texas Gulf Coast, have been announced by the Navy and Interior Departments.

The domes were disclosed by gravimetric surveys, according to an official statement.

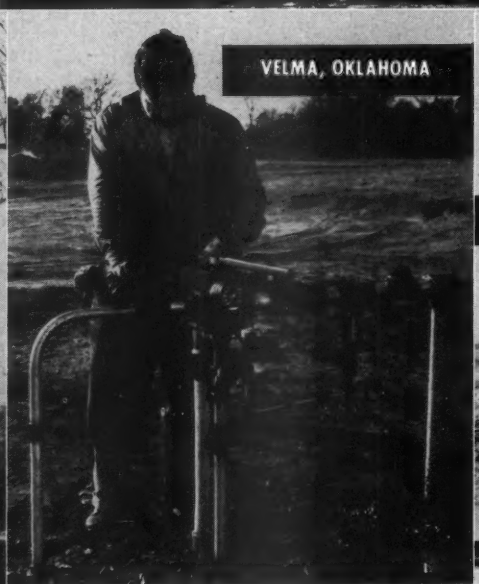
MORE, MORE and MORE

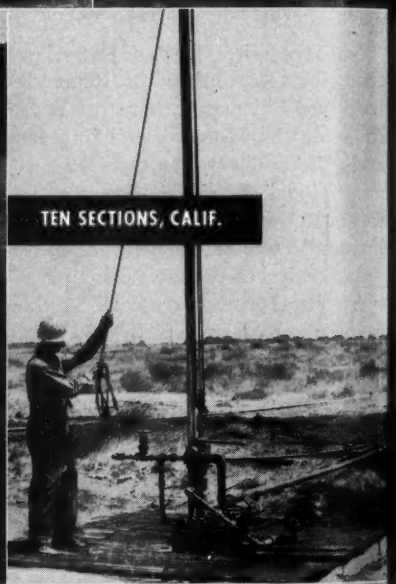

WEST TEXAS

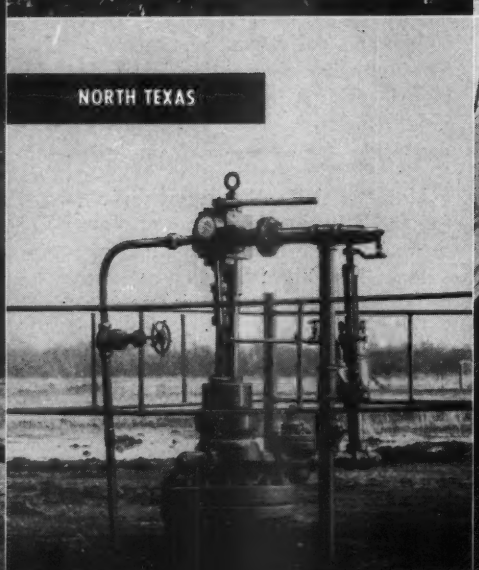
BROOKHAVEN, MISS.

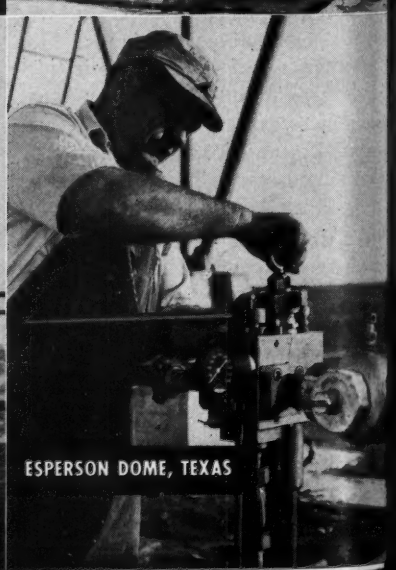

WASSON POOL, TEXAS

GULF COAST, TEXAS


VELMA, OKLAHOMA


TEN SECTIONS, CALIF.


NORTH TEXAS

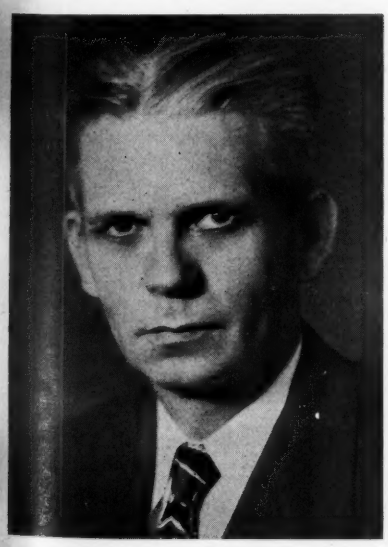

ESPERSON DOME, TEXAS

Pacific Coast A.P.I. Spring Meeting Highlights Latest Technical and Engineering Developments

Over a thousand oil men representing all phases of the drilling and producing departments of the Western oil industry attended the Spring Meeting of the American Petroleum Institute held May 6-7 at the Los Angeles Biltmore Hotel. The meeting was organized under the auspices of E. V. Watts, chairman, A.P.I. Division of Production, Pacific Coast District; with Lot Bowen presiding as general chairman. At the close of the first technical session on May 6 the annual banquet was held with an attendance which taxed the capacity of the Biltmore Bowl. Harold F. Sheets, formerly Chairman of the Board, Socony-Vacuum Oil Co, Inc., addressed the dinner group on the topic, "The Middle East."

W. G. Corey, Secy.-Treas. Pacific Coast District

E. V. Watts, Chairman, Pacific Coast District



Lot Bowen, General Chairman, 1948 Spring Meeting Committee

Technical Advancements Reviewed

The twelve papers making up the two-day meeting covered topics of technical and engineering interest to California oil men. V. N. Bednarski, The Texas Company, described work done to measure drilling mud viscosities at high temperatures. Typcal temperature-viscosity effects on a number of different clay muds were illustrated to indicate the possible effect of high temperature formations on muds. The results obtained show that most clay muds develop an increase in viscosity at temperatures above 160° F. when subjected to rates of shear of less than 600 r.p.m.

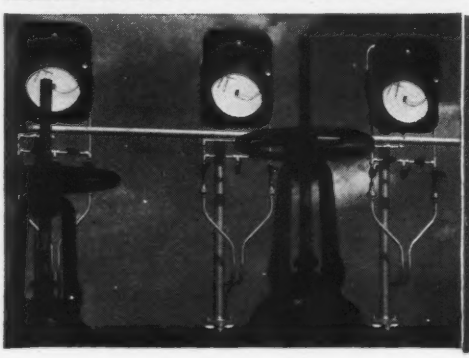
Robert Harcus, Byron Jackson Co., reviewed the field results of jet perforator charges. Results of experiments on a field scale in casing-severing and perforating in open-hole were described. Casing perforating operations on a commercial basis from the end of September, 1947, to the beginning of March, 1948, were analyzed and a comparison made with bullet perforating. The effect of the jet on a producing sand was discussed on the basis of evidence presented by microphotographs.

O. W. Chonette, Chairman, Program Committee for Drilling Sessions

William C. Harrington and Max

J. N. Gregory, Vice-Chairman, Program Committee for Drilling Sessions

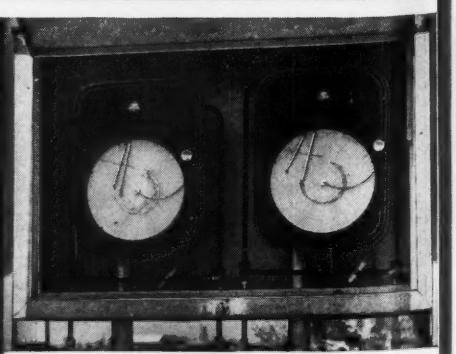
Hastings Natural Gasoline Plant of the



TOP: Dry gas overhead from absorbers

LEFT: Ahead of Compression. Three field mains equipped with Metric Orifice Meters deliver into a header

RIGHT: Twin Metric Orifice Meters on a Hastings lease. One for measuring wet gas from field gathering system, the other for dry gas used in field operations



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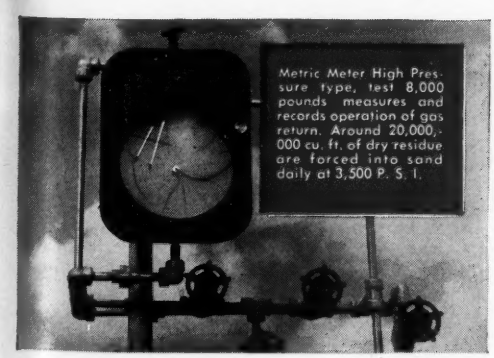
Gas cycling and maintenance operations at the Hastings Plant call for pressures varying from slight vacuum for rich or wet gas to 3,500 P.S.I. when dry gas is pumped into the wells for gas lift and conservation purposes.

Efficient operation of this plant with a daily throughput of 35,000,000 cu. ft. calls for measuring instruments of highest accuracy and dependability.

Metric Orifice Meters are effectively serving the exacting requirements of this plant at Hastings. The California Company's Lake St. John and Cranfield Plants; Shell's Sheridan Plant; Humble's Katy, Tom O'Connor, Anahauc, Clear Lake Plants, and others are demonstrating the suitability of Metric Orifice Meters for high pressure applications up to 5,000 P.S.I.

WRITE FOR FULL INFORMATION


Metric Meter High Pressure type, test 8,000 pounds measures and records operation of gas return. Around 20,000,000 cu. ft. of dry residue are forced into sand daily at 3,500 P. S. I.

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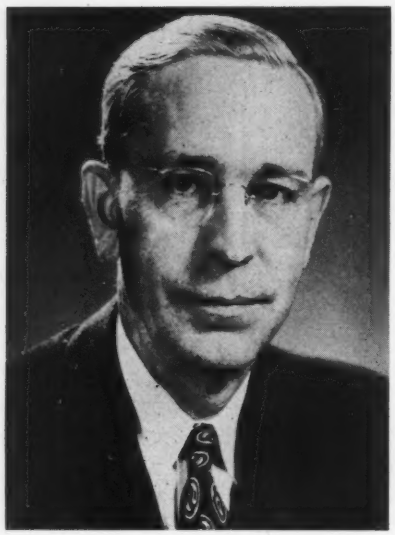
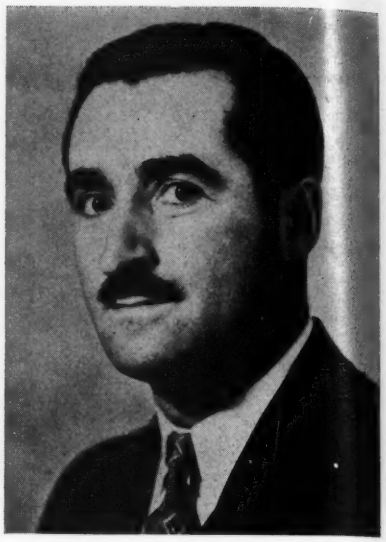


R. W. Marshall,
Program Committee for Drilling Sessions

R. J. Stephens,
Program Committee for Drilling Sessions



J. S. Surfluh,
Program Committee for Drilling Sessions

C. Eastman reviewed recent diamond coring in California and explained that the use of diamond coring equipment in California has been restricted for the most part to the Stevens Zone of the Paloma field, Coles Levee, and the Elk Hills field. In the oilbearing hard sands of the Stevens Zone, diamond core coring is given to be $8.00 per foot cheaper than rock bit drilling, and $24.00 per foot cheaper than rock head coring, and the core recovery approaches 100 per cent. Attempts to core hard schists and basalts have failed, presumably due to the partially fractured nature of the rock cored.

Secondary Recovery

Paul D. Torrey, Consulting Engineer, discussed the application of secondary recovery in the United States as related to emergency oil requirements. This paper will appear in full in the second May issue of the **California Oil World.**

Hallan N. Marsh, General Petroleum Corp., in a review of the progress of A.P.I. standards, pointed out that A.P.I. standards are continually being revised. Standards, the author stated, tend to accomplish interchangeability, economy, utility and understanding. They cover dimensions, method of manufacture, physical and chemical properties, ratings and nomenclature.

A. C. Mattei, A.P.I. director and president of the Honolulu Oil Corp., San Francisco, concluded the first day's meeting with an address on "The Oil Industry and Politics."

Drilling, Producing and Cycling

Nicholas A. D'Arcy, Jr., Consulting Engineer, discussed the application of hydraulic and pneumatic devices to drilling equipment. The author explained that such devices have found widespread use in the construction of drilling equipment from the small single engine power rigs up to the largest power and

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Oran A. Graybeal,
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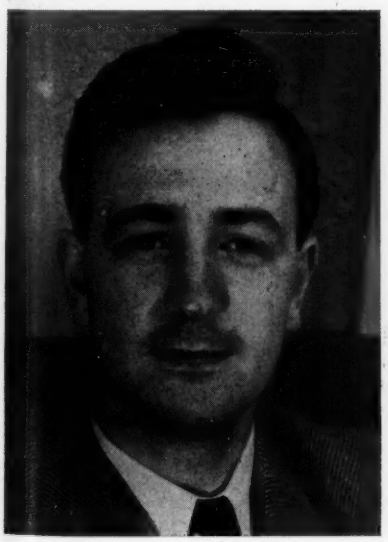
steam drilling units. The use of these devices were described as well established and based on real needs. Some of the reasons for adapting hydraulic and pneumatic devices to drilling equipment were given to be: safety, elimination of fatigue, for work not possible manually, reduction in personnel required for a given operation, and economy in original cost and in maintenance.

W. F. Bates and J. N. Gregory, Shell Company, presented a paper on the achievement of mobility in drilling units. The paper listed the important requirements of portable drilling units and described an electric drilling rig recently built to gain maximum mobility. The drilling of a 6¾ inch hole with 3½ inch, 9.3-lb. tubing was discussed and the possibility of drilling with lighter weight 3½ inch and 4½ inch tubes was suggested. The authors concluded that there are many designs in the future which are beyond present-day concepts of mobility; and that such advancements will be realized only through the diligent and continuous efforts of manufacturers and operators.

A. J. Heiser, Brown Drilling Co., reviewed the advancements in contract drilling. This discussion of the progressive trends in contract drilling is published in full in this issue of the **California Oil World.**

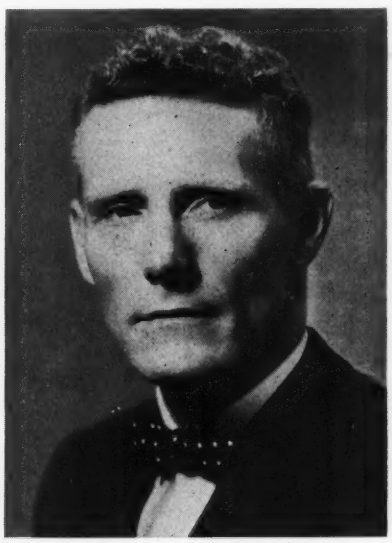
Rod Pumping and Cycling

Kenneth T. McCamman, Shell Oil Co., described some of the limitations of rod pumping. The author reviewed rod fall, and the strengths of sucker rods, tubing, pumping units and pumps, as they affect the amount of fluid that can be pumped from any depth. Curves showing quantitatively those limitations of the sucker rod pumping system were presented. The author concluded



George Laurent,
Program Committee for Production Sessions

Dean Sheldon,
Program Committee for Production Sessions



R. H. Smith,
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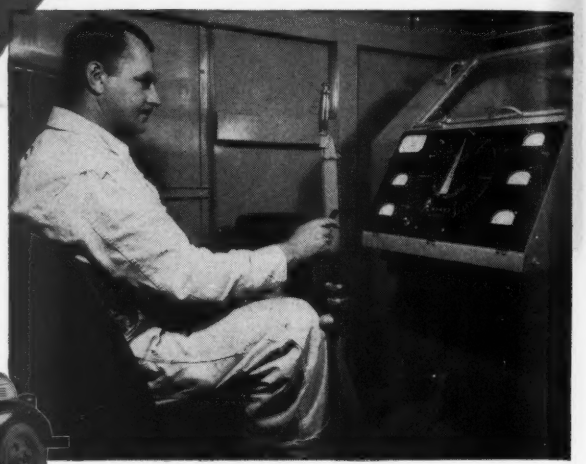

Shooting holes in oil well casing is a highly developed science. You can't do it the way it should be done without having special equipment, and you can't do it right without special skills. Here's Bill Trester inside a BJ shooting truck running in the hole using BJ developed instruments that control all phases of shooting operations.

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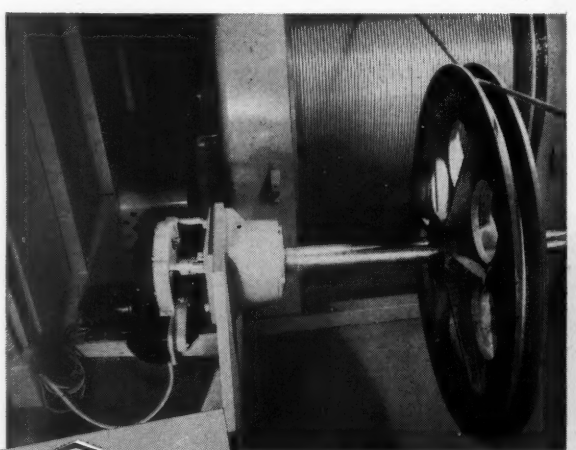

Draw-works and measuring sheave located within shooting truck.

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that the amount of fluid that can be pumped from depths less than 1,700 feet is limited by the speed of rod fall. The amount that can be pumped from greater depths is limited by the working strength of sucker rods. The development of 40,000 p.s.i. working stress rods has made possible a large increase in the amount that can be pumped from below 9,000 feet.

M. G. Arthur, Union Oil Co., analyzed the economics of cycling. The scope of his paper covered a brief review of the factors affecting recovery by gas injection into so-called black oil reservoirs, and a detailed discussion of the economics of cycling condensate reservoirs. The author stressed the point that it is hazardous to make broad general conclusions regarding the economics of methods of gas injection. For a given condensate field it does not appear possible to determine the most profitable method of gas injection without the careful consideration of many factors, the author concluded.

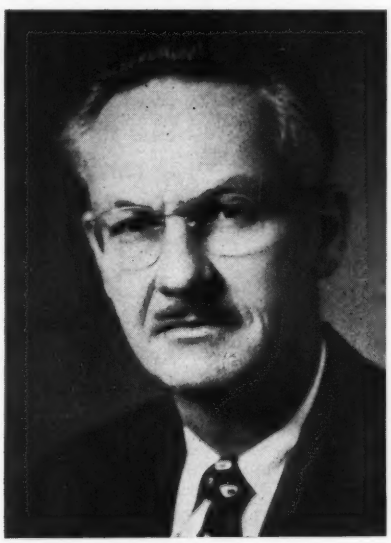
Water Flooding

Herman Dykstra and R. L. Parsons, California Research Corp., described a method of calculating recovery from a field by water flooding. The method has been used for several field floods, the authors declared, with a satisfactory agreement between actual and calculated recovery. Explaining the results of laboratory experiments, the authors asserted that the recovery by water flood is a function of the ratio of the mobility of the driving phase (water) to the mobility of the driven phase (oil), where the mobility is defined as the ratio of the relative liquid permeability to the liquid viscosity. The recovery is also a function of the permeability variation, the initial oil saturation and the initial water saturation. Other variables were shown to be relatively

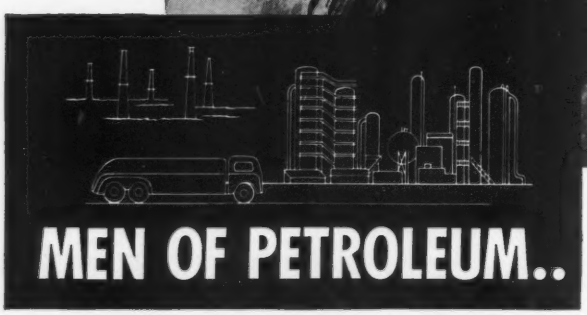
(Continued on Page 48)

D. J. Hall, Vice-Chairman,
General Arrangements Committee

Wesley Davis, Vice-Chairman,
General Arrangements Committee

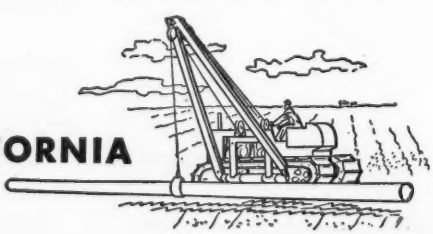


L. C. Thomson, Vice-Chairman
General Arrangements Committee



MEN OF PETROLEUM..

PIPE LINE MAN... A hundred thousand barrels of black crude, pumped from the oil fields to refineries or tanker ports, flow through this pipe daily. Sometimes the pipe is carrying natural gas, sometimes it carries refined products to storage tanks or shipping docks. The pipe line man makes sure it's doing its job right. Here he's checking welds on one of our lines that's 176 miles long. He's taking gamma-ray pictures of a weld, looking for defects. In the office, telemeters can give him flow readings at a point nearly two hundred miles away, help him watch the progress of precious petroleum on its way to people and industry.



STANDARD OIL COMPANY OF CALIFORNIA

Advancements In Contract Drilling

By A. J. Heiser,
Petroleum Engineer,
Brown Drilling Co.,
Long Beach, Calif.

ABSTRACT:

This paper treats of the progressive trend of contract drilling. The contract driller is today drilling the majority of wells in the United States. His operations are more efficiently and intelligently performed than ever before.

The factors cited as being responsible for his advancements are classified under equipment, technique, and efficiency of personnel. They emphasize the contractor as a specialist drilling wells for a profit.

Contracting costs have increased while revenues per foot have declined. It is brought out that the economic situation of the contracting industry demands sound bidding on the part of the contractor, and closer cooperation on the part of the oil operator. Continued improvement, in both a business and a mechanical sense, will assure for the future the complete and reliable service the contractor now offers.

INTRODUCTION:

The contractor is playing an important role in the petroleum industry today. His thinking and his way of doing things should be matters of interest to those engaged in other phases of the oil business. The purpose of this paper is to describe advancements the contractor has made, and to present some of the problems he faces in his operations.

Eighty-two per cent of the wells drilled in the United States in 1947 were drilled by contractors utilizing equipment worth over $500,000,000.[1] The contractor is an essential part of the petroleum industry, offering it a complete and reliable service that is developing in pace with the expanding oil business.

The history of contract drilling dates back eighty-five years, nearly to the Drake well itself. It is a history not only of adventure and individualism, but also of terrific highs and lows familiar to hazardous industries. From the start, the contracting business was keenly competitive and many a contractor failed because he bid unsoundly when confronted by shortages of work. Out of each low, however, the industry has emerged wiser with improved ability in both a business and a mechanical sense. Today, contract drilling is more efficiently and intelligently performed than ever before.

A. J. Heiser

The high percentage of wells being drilled by the contractor proves that the contractor continues to be of economical benefit to the operator. That the contractor can drill wells for the operator and show him a material gain is, in fact, his justification for existence.

It is significant to note that recently several operators have disposed of their drilling rigs and now contract all of their work. Such a trend would not take place if it did not benefit the operator.

The contract drilling industry is aware of the responsibility it has assumed, and will continue to improve and broaden, to carry its share of the load in the drive to find new and sorely needed oil reserves.

A variety of factors are responsible for the progressive trend of contract drilling. They are factors which emphasize the contractor as a specialist concerned with drilling wells efficiently for a profit. These factors fall under the general classifications of equipment, technique, and efficiency of personnel.

Equipment:

Contractor owned equipment is more advanced and better maintained than ever before. It is rigged for fast moves and unitized for simplicity. The contracting industry offers a selection of machinery to the operator to cover any job that may arise. Several of the deepest wells in the world have been drilled by contractors.

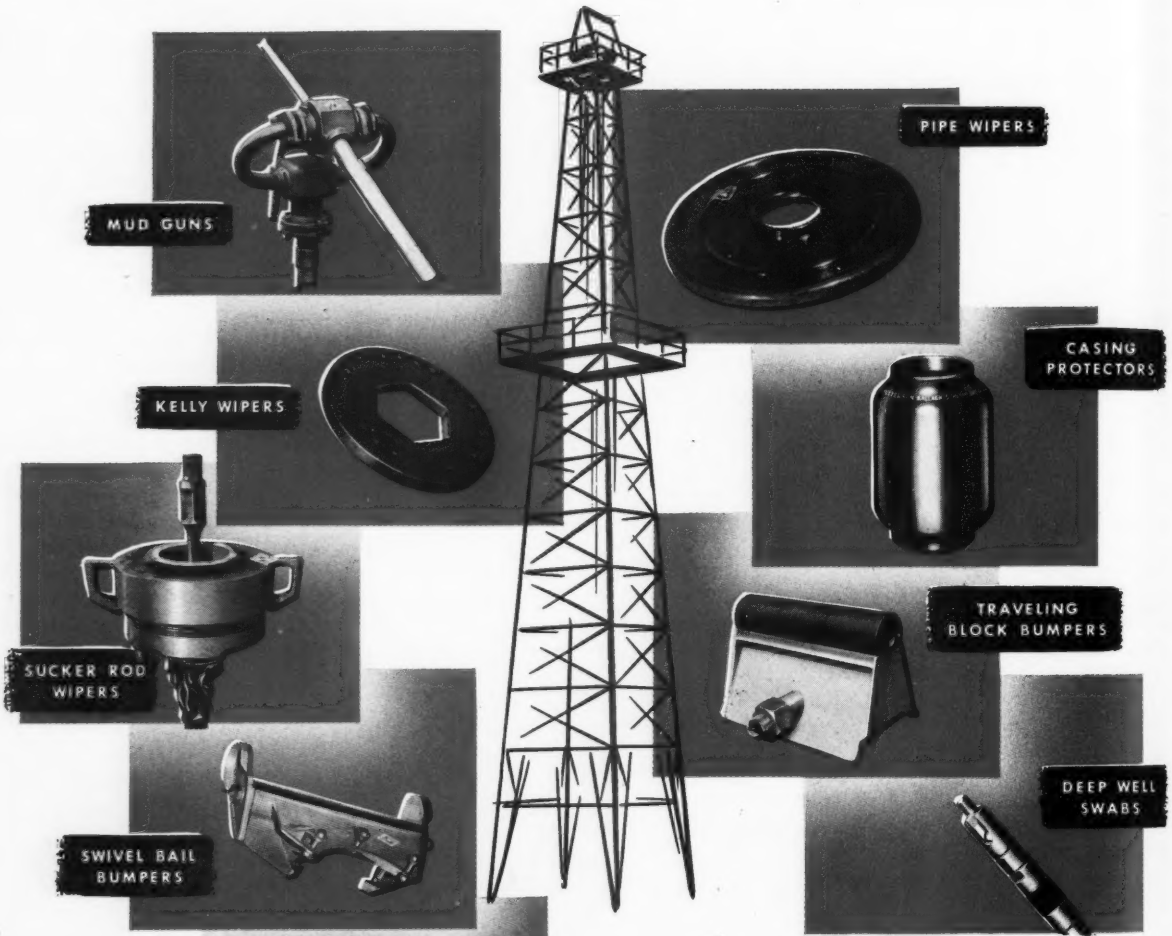
As a major buyer and user of drilling equipment, the contracting industry has a definite responsibility to the manufacturer. To design and build equipment that will give the user greater efficiency in his operations, the designer must have ideas and data from the field. The contractor is in an ideal position to help the manufacturer with this, and the two cooperating can unite the theoretical and the practical to produce equipment which will result in more footage for less cost. The nature of contracting demands that the equipment purchased justify its enormous capital outlay by rendering efficient and trouble-free service. All contracting calculations are based on the assumption that the equipment will perform according to specification.

The American Association of Oilwell Drilling Contractors sponsors many research projects to aid the individual contractor. The economic set-up of the contractor does not permit him to employ a large staff of engineers, but he approaches the same ends by cooperating with his competitors to raise the standards of his industry collectively. At the present time, the Association is sponsoring an investigation of methods to improve the performance and the life of the drill string. This research was instituted in September, 1945, and is continuing today with a study on the non-destructive testing of drill pipe. The value of this research should not be under-estimated because the drill string is the one part of a contractor's equipment that he cannot examine or repair when it is in operation.

One of the difficult jobs in contracting is to predict what type and size of equipment should be pur-

TOP PERFORMERS

From Crown to Drill Collar



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chased for future work. Will there be more 5,000′ to 7,000′ jobs than 8,000′ to 10,000 jobs? The problem is not easily if ever solved, but the logical source for an answer is the oil operator himself. He will plan the drilling programs that the contractor will bid on. It is recognized that these are days of "where to drill next," but, wherever possible the oil company should cooperate with the contractor to aid him in selecting proper equipment for future drilling.

Technique and Efficiency of Personnel:

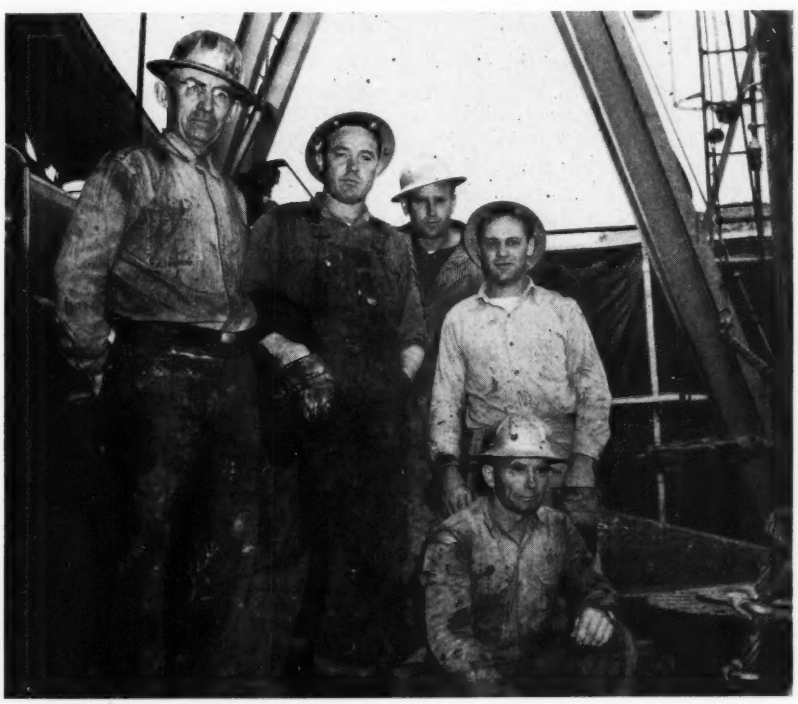
The need for trained personnel both on the rigs and in the office has never been greater than it is now. The very life of the contractor is dependent upon the ability of his men to increase their efficiency month by month and year by year. That the technique of drilling oil wells and the efficiency of the men performing their work has improved, is demonstrated by the fact that the speed of drilling increased 15% in the period from 1941 to 1947.[2] Better technique and more efficient personnel made such an improvement possible.

The present supervision employed by drilling contractors is far superior to anything we have known in the past. It is a different type of supervision. It is one of varied and complete quantity and of high quality. The majority of modern day contractors provide 24-hour rig supervision. They hire toolpushers who will be concerned with such things as bit performance, wire line service, rig maintenance, and safety. They know the importance of drilling fluid control and utilize mud engineers on their staffs. They employ trained mechanics to eliminate down time. The contractor is knowledge conscious just as are other phases of the oil business. He realizes that the more he knows about his own business the better that his over-all operations will be. This ambition for constant improvement in his operations has prompted such ideas as drilling mud schools and vocational training classes. The mud schools are sponsored by the American Association of Oilwell Drilling Contractors, usually in conjunction with local educational institutions. They are given to anyone in the oil industry interested enough to attend and that includes roughneck and engineer alike. The classes have been conducted throughout the oil fields of the country and have had remarkable success. California has only recently started this training, but the enthusiasm from all quarters indicates the need for the course and the desire of the men to improve themselves.

The American Association of Oilwell Drilling Contractors has also sponsored a novel idea at Kilgore College in Texas. A training course has been instituted for young men desirous of working on drilling rigs. A complete drilling rig was donated to further this program. At the completion of the course a man will have had some experience in all of the mechanical operations of a rig. He also will have received practical instruction in mud control, engine maintenance and safety. The first class in the course has been graduated, and the men were placed 100% on rigs all over the country.

Another factor that helped to effect improved operations on contract rigs was the installation and development of a sound safety program. This program was instituted by the American Association of Oilwell Drilling Contractors in 1945. The program consists basically of safety meetings at the rig, using different crew members as chairman each time. Reports are made of each meeting, and the best safety suggestions received are redistributed for the benefit of all. The program has functioned well and has resulted in reduced absenteeism because of injuries, repair bills, improved morale, better employee and employer relationships, and, of course, more efficient use of the company's equipment. It has also reduced considerably the contractor's compensation insurance and public liability rates which is proof in itself that the plan is successful.

It should be emphasized that the advancement in the phases of contracting activity just discussed has been responsible for the contractor's increased speed of drilling. This speed of drilling is enabling him to stay in business. A survey made in October, 1947, shows that the contractor's labor costs had gone up 35% since 1941. His equipment costs had increased 30% and his rig operating costs 40%. During this



In the West Coyote Field at Standard Oil Co.'s Murphy-Coyote well No. 211. Left to right: John J. Boyle, driller; C. R. Jennison, driller trainee, L. R. Whittaker, rotary helper; L. E. Wyrick, rotary helper; C. C. Grider, derrick.

Wilshire Oil Co., Inc. Baker No. 9, Santa Fe Springs Field. Front, left to right: Herbert Price, roughneck; A. V. English, cathead and D. M. Pyles, pipe racker. Rear row, left to right: Barney Horan, driller; J. Hill, tool pusher; V. B. Davis, derrick and C. E. Murphy, prod. supt.

same period, the price per barrel of crude oil had increased 69%, yet for the United States as a whole, the price per foot that the operator paid for the drilling of a well in 1947 was 1% less than the price he paid in 1941. For California, his cost per foot was 2% less.[3]

The Bid:

One may attribute this paradox to keen competition, but, whatever the reason, the contract drilling industry and the oil company know that the contractor must show a profit if he is to maintain the healthy organization that he has today. The only way he can show a profit is to charge and receive a fair price. The only way he can receive a fair price is to bid soundly and intelligently. It would be well to summarize some of the elements the contractor faces in attempting to develop a bid which is low enough to gain him the contract, but high enough to show him a fair profit.

The bid determines the final remuneration that the contractor will receive for his services. It must therefore be a bid that has been developed with the full knowledge of what its conditions cover.

The request for bids issued by the operator contains the well specifications that the contractor must know to prepare his bid. However, there is considerable variation in what the operator requires the contractor to furnish and the responsibility he asks him to assume. The contractor must study each bid request carefully, and take care to adjust his thinking to the realities of the work to be performed. There can be just as many hazards in a bid request as there are in the drilling of the well.

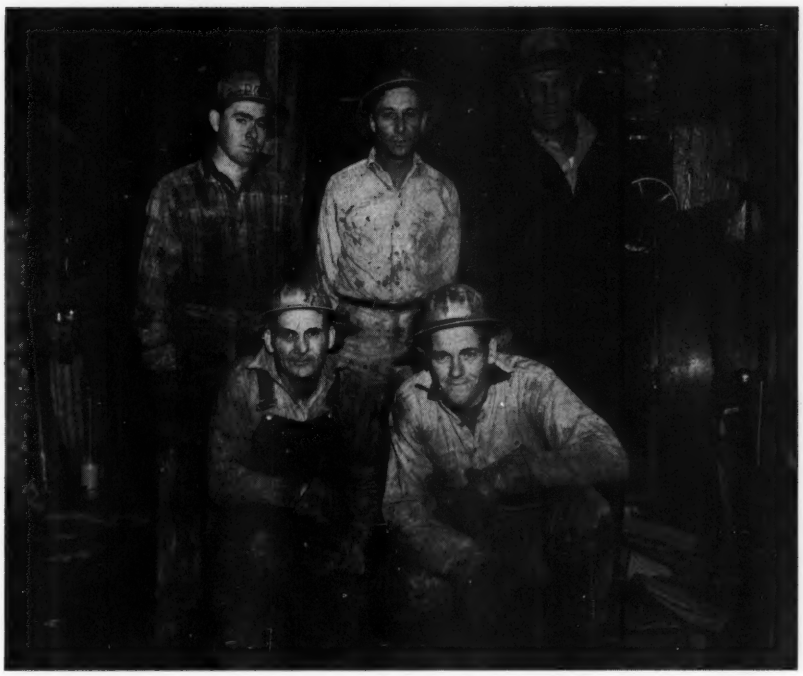
It is impossible to make an intelligent bid without a true knowledge of costs. Much time and effort has been expended in developing accounting procedures which show the contractor clearly and accurately where his money goes. There is no one basic cost accounting method used by the contracting industry, but most contractors are cost conscious and the majority can demonstrate their costs for each rig by days, by wells, and by areas. Cost analyses are receiving constant attention and study which is necessary in view of the earlier stated fact that the price per foot today is practically the same as in 1941. Although true costs are the basic requirement in the development of a bid, there are other important items that the contractor must know in order to bid soundly. He must know his areas and be able to differentiate classes of work and classes of wells. The contractor will have complete well information including mud records, bit performances, hazardous zones, etc. in areas where he has worked. In a new area the contractor faces a more difficult problem but may, in most cases, receive aid from the operator by checking company-owned records.

The majority of contracts let today are of the bottom hole or footage type wherein the contractor is paid for each foot of hole he drills. The typical contract of this type re-

Southwest Exploration Co.'s well State J-61 in the Huntington Beach field. Left to right: C. H. Allen, derrickman; G. C. Foster, cat head; P. S. Feldthouse, floorman; Bill Huntley, driller; J. A. Pennington, lead tong.

leases the contractor from the footage part of the agreement after he has successfully placed the water string in the hole. Therefore, the contractor must estimate at the time he develops his bid how many days he will spend under the footage part of his contract in order to arrive at his total estimated costs. The profit that the contractor anticipates making on a well is nominal in comparison with his total estimated costs. Hence, his anticipated costs must be carefully considered.

The knowledge of true costs is a matter of good accounting procedures, but the risk factor on a well is another matter. There is no possible way of knowing how much time will be consumed fishing, fighting crooked hole, or combating lost circulation. It is only too apparent that any one of a number of hazards may arise to completely destroy a contractor's estimate and, therefore, his anticipated profit. It is an absolute necessity that the contractor face his problems in a realistic manner. He must have the cooperation of the oil operator to bid soundly. Such cooperation is fully recognized by the oil business to be of mutual benefit to both parties.



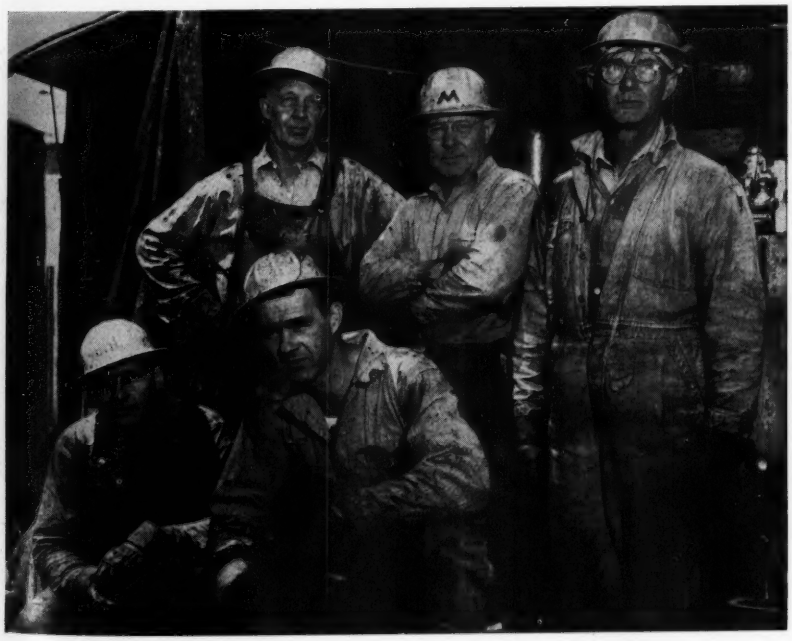
Camay Drilling Co.'s Aguirre No. 102 Del Valle Field. Front row, left to right: A. R. Benson, cat head; A. B. Dwyer, floorman; rear row, left to right: D. W. Rector, lee tong; B. R. Jones, derrick; H. V. Hayes, driller.

Conclusion

The contracting industry is drilling the majority of wells in the United States today. They are being drilled 15% faster than in 1941 due to improvement of equipment, technique, and personnel. Educational and experimental programs which benefit the entire oil industry are being initiated at considerable expense to the contractor in order to further increase drilling efficiency.

Since 1941, contracting costs have increased approximately 40% and revenues per foot have declined an average of 2%. This economic condition within the industry demands sound bidding with close analyses of true costs, type of wells, and risks involved.

The contractor is a recognized and integral part of the oil business equipped and staffed to drill wells without restriction as to area or depth, and meet the rigid requirements of modern day drilling.



Standard Oil Co. Murphy Coyote #217, Coyote Field. Rear, left to right: A. Leandr, driller; "Mickey" Ranken, relief driller; L. S. Hebert, driller, working derrick on this tour. Front row, left to right: Bill Jenisch, cathead and Bill Solesbee, roughneck.

Acknowledgments

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[2]Dudley, R. L., Drilling Contracting Situation, World Oil, October 1947, Page 63.
[3]Dudley, R. L., Idem.

This paper was presented at the Spring Meeting of the Pacific Coast District, Division of Production, API, Biltmore Hotel, Los Angeles.

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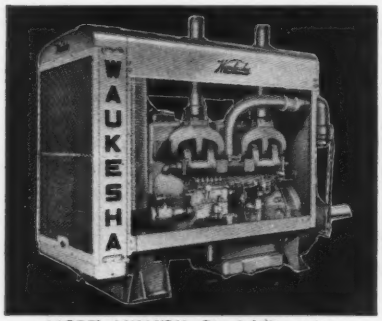
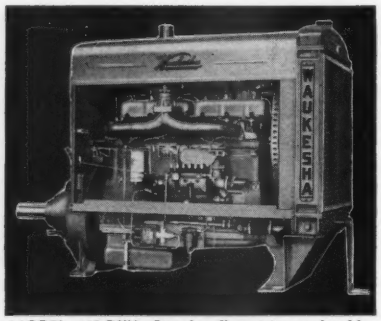
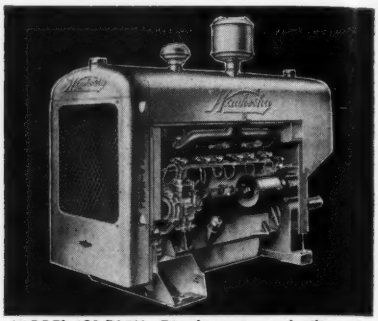


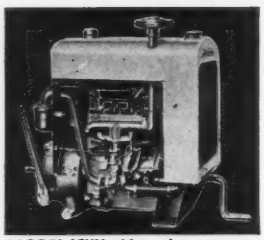
MODEL 6-WAKDU—Diesel drilling unit; 150-190 hp.



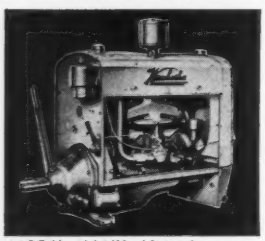
MODEL 148-DKU—Diesel well servicing and cable tool drilling unit; 78-147 hp.



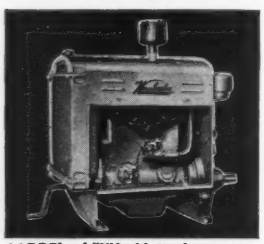
MODEL 190-DLBU—Diesel pumping and utility unit; 25-53 hp.



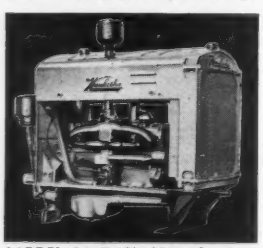
MODEL ICKU—Natural gas or gasoline unit; 8-16 hp.



MODEL XAHU—Natural gas or gasoline pumping and utility unit; 20-36 hp.



MODEL VIKU—Natural gas or gasoline pumping unit; 25-50 hp.



MODEL 6-MZAU—Natural gas or gasoline pumping unit; 50-75 hp.

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J. A. Werme Steel & Iron Works	Oklahoma City
Waukesha Motor Company (Branch)	Tulsa
PENNSYLVANIA	
Bradford Supply Company	Bradford
Oil Well Supply Company	Oil City
Motive Parts Co.	Pittsburgh
TEXAS	
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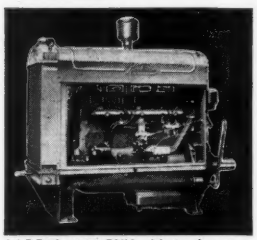
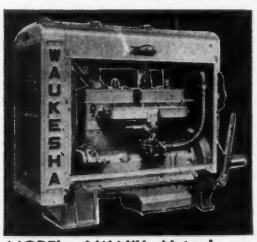
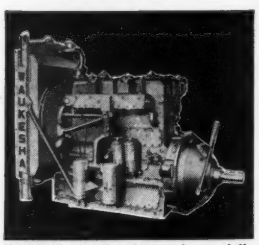
WEST VIRGINIA	
Oil Well Supply Company	Charleston
WYOMING	
Power Service Company	Casper



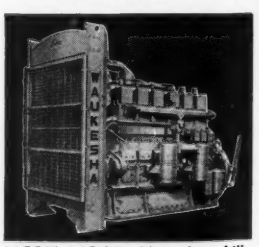
MODEL 145-GKU—Natural gas or gasoline servicing unit; 110-167 hp.



MODEL 6-WAKU—Natural gas servicing and drilling unit; 156-210 hp.



MODEL 6-NKU—Natural gas drilling unit; 150-225 hp.



MODEL 6-LROU—Natural gas drilling unit; 250-409 hp.

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The first requirement for utilizing instruments is that of maintenance personnel. The instrument maintenance crew should be headed by someone with a minimum of two years' experience with measurement and control, preferably in the industry concerned. A degree in chemical, electrical, or mechanical engineering is an asset, and in many cases, essential. Quite often the plant instrument engineer is also the head of the instrument maintenance department and also plant electrician. The maintenance chief should have a fair knowledge of the plant processes, a knowledge of electrical and electronic equipment and circuits, a knowledge of the principles of hydraulics as applied to fluid flow in orifices, valves, pipes, and nozzles, a good grounding in the practical aspects of pyrometry, pressure measurements, and mechanical equipment. By way of personality, he should have a reasonably even temper and sense of humor (he will certainly need both). He should be able to teach what he knows about instruments to inexperienced assistants.

The instrument men working under this head need not necessarily have previous experience with the equipment involved, but they should have a lively interest in measurement and control. They may be chosen from other plant occupations which acquaint them with the processes or manufacturing steps which are to be controlled. Care should be taken that these men are not just angling for what they consider a soft job, or possible freedom from shift work. The instrument man should be of a type who does not

H. A. Hulsberg

try to impress people with his knowledge, or to antagonize them in general. Hobbies of a certain nature are a fair indication of natural aptitude in the absence of an experience record. Thus an applicant who is a radio amateur, a model train enthusiast, or a home gadgeteer who puts strange devices on his stoker, is a good bet as an instrument trainee.

By way of training, a plant school may be established, either on company time, after hours, or on a fifty-fifty basis. Instrument companies run excellent training courses to which trainees may be sent if both time and money are available. In the absence of either of these systems, the trainee may be assigned to an experienced man as helper or apprentice, until he becomes proficient enough to go on his own. During this time he should do as much as possible with his own hands, rather than just watch. All calibrations and adjustments should be checked until the trainee has proved his ability.

There are two schools of thought on the organization of a maintenance department from a personnel standpoint. One school advocates having each man a specialist in a particular type of instrument; he need know little or nothing of others. Thus, a department would consist of a pressure gauge expert, a pyrometer recorder expert, a level recorder expert, etc. The other school is that which rotates the training and experience so that each man is qualified to work on any number of types of equipment, even though less proficiently. I am inclined to favor the latter—with a strong dash of the former—to get a hybrid species that is able to work on almost anything, but has certain specialties depending upon previous experience, education, hobbies or personal preference. With the accent upon electronically actuated recorders and controllers prevalent today, it is highly desirable to have an electronic technician to help out on maintenance and trouble shooting where other instrument men who are very good on mechanical instruments have difficulty. Electronic training is very difficult to get across in a short time.

There are also two schools of thought with regard to preventative maintenance and repair. In many cases the instrument man has so much to do that his work may consist only of rushing from one point to another to replace parts as they wear out or fail, to oil instruments when they squeak or plain stop working, and to remove dirt when it has completely fouled operation. Preventative maintenance involves a regular program of calibration checks, lubrication, cleaning, replacement of parts, and checking adjustments. Preventative maintenance may require more manpower, but the improvement in operation, and the elimination of costly shut-downs or spoilage is well worth the effort of having a definite preventative maintenance program. Morale of personnel is also improved. Emergency repairs are still a necessity, of course.

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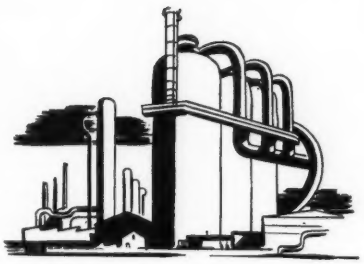
Preventative maintenance calls for a system of records. One system is to have a loose leaf notebook, each sheet of which covers one instrument, along with its serial number, plant location, and application. A number of headed columns call attention to required preventative maintenance. The dates of such maintenance, as well as of emergency repairs, are recorded, with the serviceman's initial. Sheets may be filed according to plant location, or according to instrument type or manufacture. A card index system may be preferred over a notebook system, but is not so readily portable.

Records are also important from the standpoint of training. Often a check-off system is used; this indicates instruction in particular branches of instrumentation, as well as experience in that particular branch. In larger instrument departments, various grades of instrument maintenance men may be established, dependent upon experience, aptitude, and training. Thus, grades of instrument helper, instrument mechanic, senior instrument man, etc. may be established, with varying degrees of salary and responsibility.

A small library is a help in training instrument men. A file of manufacturer's instruction pamphlets is a must for this library. Manufacturer's catalogues are very often a better way of acquainting the novice with the principles of a particular instrument than the instruction sheets by virtue of the more entertaining pictures and less ominous sounding text. "Instruments Magazine," the "Review of Scientific Instruments," and "Electronics," as well as periodicals of the manufacturing industry involved, are suggestions for current literature to be circulated or made available for home reading. Chemical, electrical, mechanical or electronic engineering handbooks are compact sources of information for reference, as are many publications of the National Bureau of Standards.

The instrument shop should be a service center for equipment not readily serviceable in the field. Bench space need not usually be provided for every man, since most departments will have about half of the help at large in the plant on



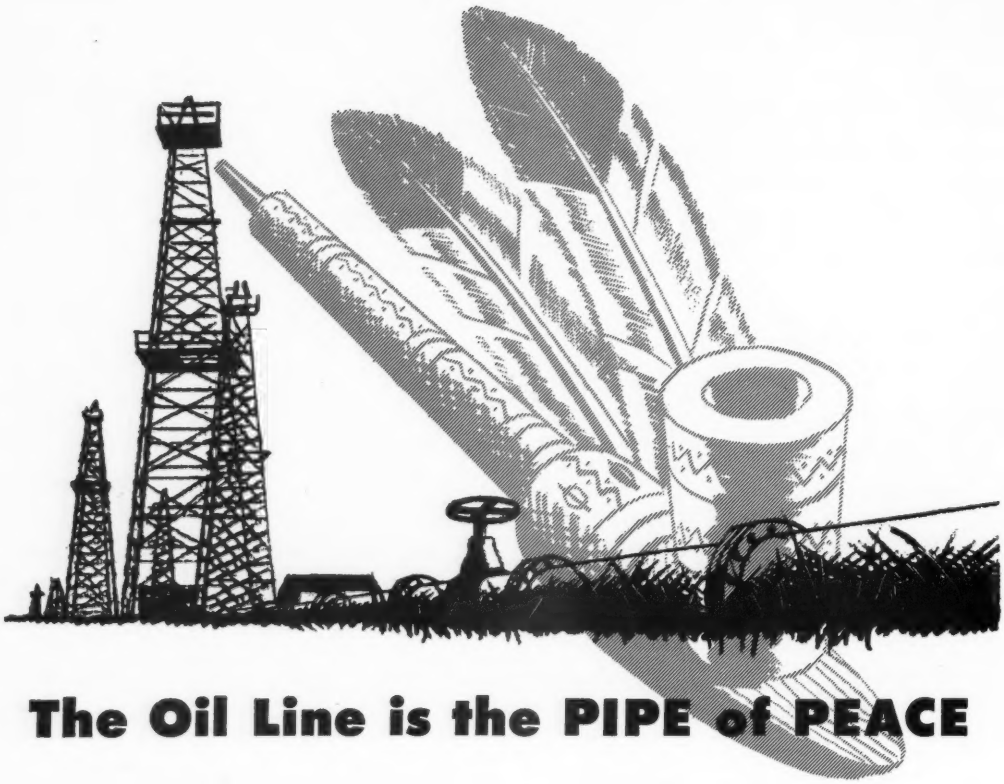
service or preventative maintenance work. Space should be provided to separate clean work from dirty work. If moving coil meters must be serviced, a reasonably dust-free room should be provided. Iron dust has an annoying habit of sticking to permanent magnet fields and fouling the moving coil or galvanometer. Neatness of surroundings should be stressed, since it encourages more careful work on delicate mechanisms.

By way of tools, in addition to the usual wrenches, screwdrivers, etc., special manufacturer's tools peculiar to their particular instruments should be provided, since in many cases they save valuable time. A torch for brazing, soldering, and for welding thermocouple junctions is a necessity. Ordinary gas from the mains, plus an oxygen tank and regulator, is sufficient. Pipe and machinist's vises are required, and a portable electric drill. If a machine shop is not available, a drill press, and perhaps a small lathe are useful, particularly for control valve repairs, or for turning such items as rotameter floats.

Testing and standardizing equipment is necessary to maintain the accuracy and reliability of instruments. For thermocouple work, a portable potentiometer covering the full range of temperatures, or from zero to sixty millivolts, is required. If the portable does not have a variable voltage source, or "battery box" for testing moving coil meters, an external one should be provided. For work with pH instruments, a portable pH meter, buffing solutions, and another portable potentiometer reading from 0 to 1.1 or more volts should be provided, or be available in the plant. The one volt potentiometer is very useful as a standard in checking d.c. ammeters, voltmeters, or standard cells. A combination Wheatstone bridge and decade resistance box is also very useful in standardizing, as well as in emergency winding of resistance coils in instruments. If electronic type instruments are used, a volt-ohm,milliameter is a necessity, and a gas or vacuum tube tester is very desirable. The latter may be eliminated if a large replacement stock of electronic tubes is available for comparison tests.

By way of pressure standards, the dead weight tester is the most reliable in the range of 15-10,000 pounds per square inch. For a smaller shop, or for portable use as a secondary standard, well-calibrated, and well-kept Bourdon gauges with a hand pressure pump are satisfactory. The latter is especially useful for checking pressure recording and controlling instruments in place. For pressures in the range of 0-15 p.s.i.g., a single-leg, well-type manometer is more accurate than the dead weight tester, since friction and oil viscosity tend to make the latter less reliable at these pressures. This same manometer may be used for testing vacuum Bourdon gauges, and for the higher ranges of flowmeters and differential pressure meters in general. Plant instrument air and vacuum should be available in the shop for pressure measurements and for instrument checking. In the absence of a regular plant supply, a small compressor should be provided, and a vacuum pump where vacuum measurements are made, or where evacuation of systems is required, such as for gas, vapor, or liquid filled thermal systems in conjunction with temperature instruments.

Indicating pressure gauges should be clearly labelled as to tube materials, and in many cases as to service. In food or the more exact chemical industries, serious contamination could result by interchange of gauges from one service to another. Maintenance personnel should be cautioned with regard to the danger involved in the use of oil for testing gauges used on oxygen tanks or lines, and in using the wrong Bourdon tube for chemicals such as ammonia, corrosive or volatile acids, caustics, and the like. Pressure gauges which have not been decontaminated may be a seri-



The Oil Line is the PIPE of PEACE

Oil has been unjustly called the cause of wars, and it certainly is one of the principal weapons of war, but under today's conditions oil has become the symbol of peace.

An adequate supply of oil for the industrial development of western Europe can do more to establish and maintain peace in the world than almost any other action.

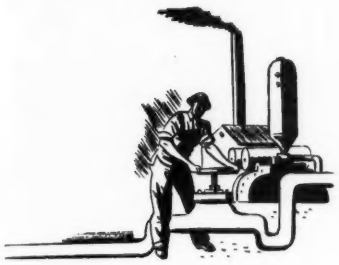
Such a fuel supply would make possible a revived standard of living for the people on whom safety of the world must largely depend. It would rebuild the industry and commerce of nations that will work for peace. And oil has become the only source of industrial power that is quickly and economically available for western Europe.

Petroleum becomes more and more vital to the progress, if not the very life, of people in every part of the world. Those of us engaged in the production and distribution of petroleum products have a tremendous opportunity, and an equally great responsibility. Under our system of competitive business we are able to meet this challenge, and it is increasingly important that we have full opportunity to do so.

General Petroleum Corporation

(A Socony-Vacuum Company)

Mobilgas
SOCONY-VACUUM



ous danger to the instrument man because of poisonous or corrosive compounds, particularly when they have become plugged at high pressures, and the compounds are released as the obstruction is removed. Indicating pressure gauges which have become hopelessly plugged or ruptured should be returned to the manufacturer for repairs, since repair or replacement of Bourdon tubes in the instrument shop is seldom economical.

For most plant work, temperature standards may be standardized thermocouples, thermometers with Bureau of Standards calibration, and for the higher temperatures, optical pyrometers. Platinum-rhodium standard couples are best at temperatures from about 600 to 2,000 degrees F. For laboratory work, melting point standards obtainable from the Bureau of Standards are convenient in calibration of couples. The ice-point, steam point, melting points of tin, lead, zinc, aluminum and copper are commonly used. Thermocouples must be protected from contamination with calibrations of this sort, and melting metals must be protected from oxidation with carbon dust and crucibles specially constructed. Bureau of standards bulletins covering such measurements are available. Precision potentiometers, rather than industrial, should be used for very accurate calibrations. Resistance thermometer calibrations with standardized elements are capable of very high precision and accuracy in the lower and minus temperature ranges, when used with precision potentiometers such as the White.

Water column manometers are used for calibration of differential pressure instruments such as flow and liquid level types. Single-leg well-types are much more convenient to use than simple U-tubes. Water manometers are used for differential instruments ranges up to about 50 inches of water. Above this range a mercury manometer is more convenient and portable. Inclined gauges should be used for the range of 2 inches and lower.

A standard orifice calibration apparatus is available from the manufacturers of displacement gas meters. This is very convenient and accurate for gas or air flow calibrations in the range of 20 cubic ft. per hour to 6,000 cubic ft. per hour. For smaller and intermediate gas flow calibrations, displacement tanks using water or oil to displace the gas are very good. For liquid flow calibrations, calibrated tanks and stop-watches are used. For all flow calibrations, good pressure regulators should be used to maintain steady flows, and temperature should be maintained as steady as is practical. All corrections such as barometric pressure, temperature, static pressure, water content of a gas, specific gravity, and—in many cases—viscosity, should be made; or at least, it should be made certain that such corrections are not large as compared to the accuracy required.

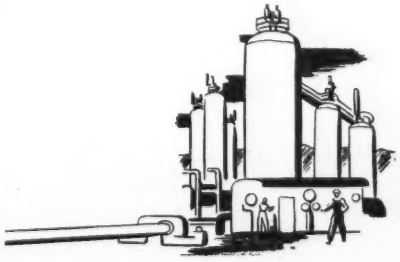
An essential part of the instrument shop equipment is a supply of spare parts. Upon ordering a new instrument, the manufacturer will recommend a list of spare parts, most of which consist of items of short life, or those which are easily broken. Experience with a particular instrument is the best means of finding out which parts are most likely to need replacement. Cannibalization or borrowing parts from an instrument which does not happen to be in use, is often necessary, but it has the disadvantage of making two repair jobs instead of one. Improvised parts and haywire repairs should be avoided. Prompt replacement of spares as they are used is particularly important in these days of long deliveries.

Besides spare parts, there are those which are classed as running maintenance parts, such as charts, ink for recorders, lubricants, pens and pen cleaners, mercury, thermocouple wire and insulators, and chemicals for pH electrodes and for gas analyzing equipment. Where recording is necessary to observe trends, but where the records are not filed, the permanent-type charts, where the record is washed off or erased, may be an economy.

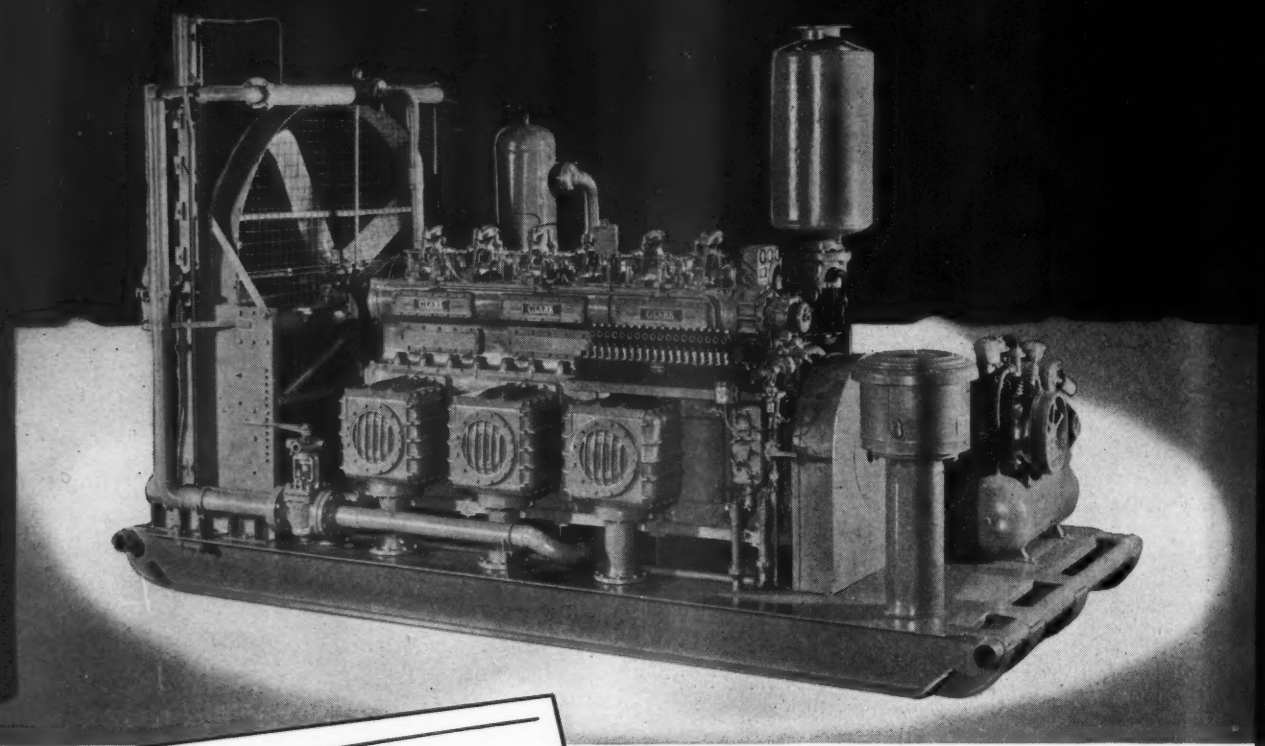
Coordination with other departments by the instrument maintenance department is essential to successful utilization of instrumentation. If the instrument engineering department is a separate organization from the maintenance department, the purpose and specifications of new instruments should be made known to the maintenance man, and all maintenance instructions should be turned over to him. Coordination with the process engineer by the instrument engineer often can simplify the maintenance man's job by eliminating headaches. For example, the storage time in vessels under liquid level control, if properly calculated, can make instrument adjustment much more simple, as can the proper location of valves, the allowance of the proper pressure drop across valves, the correct location of thermocouples, and the elimination of troublesome process lags. The maintenance man should report all major defects and troubles to the instrument engineer to assist him in future specifications, and to enable the instrument engineer to present his point of view.

Coordination with plant operating personnel eliminates many troubles and arguments. The instrument maintenance man should request that operators make all plant process adjustments or have the operator's sanction of any plant adjustments he may make himself. Further, an explanation of what he proposes doing will usually improve cooperation. Such a policy not only makes for better relations, but relieves the service-man from excessive responsibility, and contributes to safety. Where disagreements on policy arise, they should be referred to those in higher authority.

(Continued on Page 48)



Tulsa Exhibit Spotlights THESE



CLARK "Midget Angle" COMPRESSOR

A "Packaged" Compressor Station

Introduced less than two years ago, the Clark "Midget Angle" Compressor has been received by the industry with enthusiastic approval. Its quick adaptability to a variety of jobs, its ease of portability from one job to another and its rugged ability to do a real pressuring job are responsible for this wholehearted acceptance by oil men.

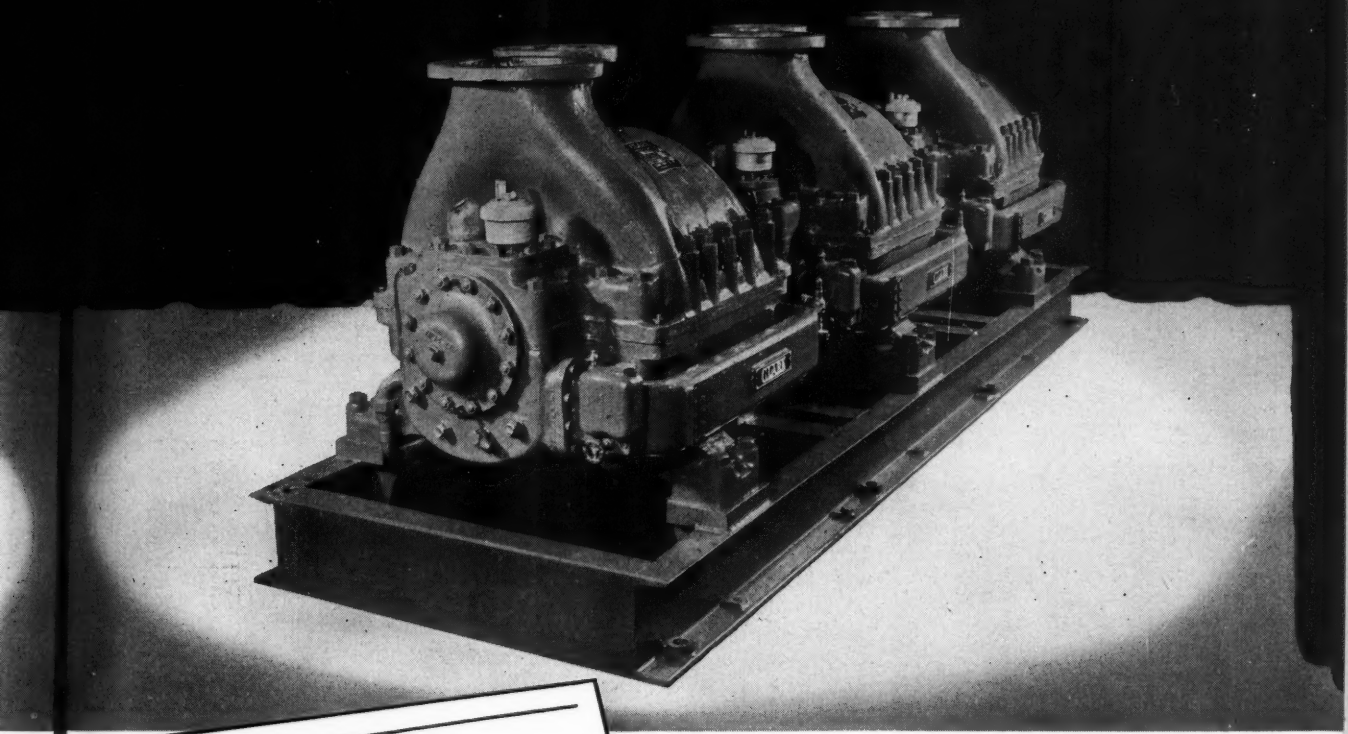
Mounted on skids for short-duration jobs in the field, or permanently installed, the Clark "Midget Angle" makes an ideal unit within its established powers, from 75 to 300 B.H.P. It insures close control of pressure and its perfect running balance permits a wide range of speed with a minimum of vibration.

CLARK

ONE OF THE DRESSER INDUSTRIES

SETS THE PACE IN COMPRESSOR PROGRESS

E NEW CLARK COMPRESSORS



CLARK "Centrifugal" COMPRESSOR

For High Pressures and Large Volumes

Here is the economical answer to the need for greater capacity compressors.

Clark Multi-Stage Centrifugals have been designed specifically for high pressure and large temperature differential duty.

As illustrated above, the new Clark design provides for through drive, which permits two or more compressors to be connected in line, with one driver. Extreme economy of space, installation and operating cost is thus achieved.

Standardized design permits use of interchangeable parts and easy adaptation to different types of service as well as speed in filling orders. Capacities from 2,000 to 60,000 c.f.m. and pressures up to 300 lbs. can be handled.

SEE CLARK BROS. EXHIBIT AT THE TULSA OIL SHOW

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Tulsa • Washington • London • Bucharest, Rumania • Caracas, Venezuela

Personalities IN THE NEWS

Cranson Heads Oil Producers Agency

L. A. Cranson, executive vice president and a director of Honolulu Oil Corporation, was elected president of Oil Producers Agency at its annual meeting in Los Angeles on April 14. Mr. Cranson succeeds W. C. Whaley, vice president and manager of Barnsdall Oil Company California operations, who has been Agency president for the past two years.

L. A. Cranson

In addition to his Agency presidency, Mr. Cranson is also a director of Kettleman North Dome Association, and during the war was a member of the Production Committee for District 5, under the Petroleum Administration for War. He has been a director of Oil Producers Agency for the past several years.

Mr. Cranson is married and has two sons. He lives in San Mateo.

Other officers elected at the Agency meeting were H. E. Woodworth, first vice president, Safe Oil Company, Bakersfield; R. A. Grant, second vice president, Fullerton Oil Company, Los Angeles; C. C. Spicer, third vice president, Republic Petroleum Company, Los Angeles; C. A. Johnson, fourth vice president, Holly Development Company, Los Angeles.

Rush M. Blodget, who has been executive vice president of the organization since it was founded 18 years ago, was reelected to that office.

W. A. Russell, Seaboard Oil Company was elected secretary treasurer and Verne Harrell, Bankline Oil Company was elected assistant secretary treasurer.

Directors whose terms had expired were all reelected. They are: J. M. Feldman, Ralph B. Lloyd, D. T. Staples, H. E. Woodworth, R. H. Garrison, M. A. Machris, C. P. Watson, Roy W. Young, Jas. H. Lewis, L. K. Whittier, Chas. T. Wilson.

J. W. Brown has been named manager of Oil Well Supply Company's store at Bakersfield, Calif., it was announced recently by Warner F. Parker, manager of this U. S. Steel subsidiary's California division.

A native of Hamlin, Texas, where he attended high school, Mr. Brown served with the Army Air Forces in World War II. He has been a storeman in the Bakersfield store since joining "Oilwell" in August, 1947.

F. A. Gibson, branch manager for General Petroleum at San Diego, has been installed as the new president of the San Diego Lions Club. He has been a member of the service organization since 1932.

Robert Harding Bowles, 52, prominent oil man died in San Francisco of a heart attack. He was president of the Cimarron Petroleum Co., with headquarters at Long Beach.

Dasney Joins Howard Supply

The Machinery Division of Howard Supply Company has added George L. Dasney to its list of Sales Engineers. Dasney recently returned from Saudi Arabia, where he was Equipment Engineer for one of the major oil companies. He will now represent Howard Supply in the sale of production equipment, replacing R. G. Foreman, who resigned recently.

George L. Dasney

Dasney, who originally came from Corning, New York, studied Mechanical Engineering at the University of Michigan. His first association with the oil field equipment business was with the Emsco Derrick and Equipment Company in Houston, where he was Plant Superintendent. Coming to California in 1942, he was for three years connected with Western Gear Works in their Engineering Department, working on Marine Gear Units for the Navy and finally representing service and sales of Pacific pumping units.

The latter part of the war and prior to going overseas, he was a Plant Engineer at the Naval Ordnance Test Station, Inyokern, California.

Moncrief Heads Texas Office of Fluor Corp.

A new division of The Fluor Corporation, Ltd., called the Mid Continent Gas-Gasoline Division, was set up with offices in the M & M Building, Houston, Texas, with Mr. Ernest Moncrief, Manager in Charge. This new Division was actively engaged in its new quarters on May 1, 1948.

Ernest Moncrief

This Division is to handle engineering, drafting, purchasing and accounting, together with construction, using Fluor's regular field personnel, on gas-gasoline, cycling and dehydration plants in the region east of the Rocky Mountains.

Along with Mr. Ernest Moncrief, the following Fluor personnel is being transferred, to complement and integrate the functions of this new Division: J. L. Tathwell, Engineering Department; William F. Chapin, Process Department; Tom H. Hanks, Accounting Department; and C. E. Richardson, Purchasing Department.

Glenn McCarthy, Texas oil millionaire, has formed the Glenn McCarthy Productions to make "Land of Plenty" in Hollywood. Robert Paige, motion picture star, will act in the picture. Monty Collins, Hollywood writer, is writing the story adaptation.

Pelton Hydraulic Pumping Jack Department Announced

The formation of a Hydraulic Pumping Jack Department devoted exclusively to the design, manufacture, sales and service of the Pelton Long Stroke Hydraulic Pumping Jack was announced by W. F. Boyle, Vice President and General Manager of The Pelton Water Wheel Company. In the new departmental set-up C. J. Woodard has been named Manager Sales-Service, L. D. Alward, Chief Engineer, and J. W. Young, Shop Superintendent.

Pelton started the development of the Long Stroke Hydraulic Pumping Jack in 1939 for rod pumping of oil wells—particularly in the deeper zones—and have fifty (50) units built or building for the California oil fields to date, forty-four (44) of them installed since the end of the war. In addition Pelton has recently expanded its activities to the mid-continent oil fields by installing a Long Stroke Hydraulic Pumping Jack in Oklahoma.

Woodard is a graduate of the California Institute of Technology, served three years in the Navy as Engineering Officer of a Destroyer, and has been connected with the manufacture, sales, service and application engineering of the Pelton Long Stroke Hydraulic Pumping Jack since the war's end.

Alward is a graduate of the University of California, served one year in the Navy, and has been connected with the design, service, and testing of hydraulic machinery—particularly the Pelton jack—since 1939.

Alward-Woodard-Young

Young has been connected with the manufacture, testing, and installation of hydraulic machinery for Pelton since 1936, and was Manufacturing Engineer before appointment to his new position.

R. E. Raasch, Chairman, Entertainment Committee California Natural Gasoline Assn.

Roland is celebrating his tenth anniversary as a member of C.N.G.A. by doing a bang up job in the organization of the forthcoming Frolic on June 5th. Hailing from the wide open spaces of Montana where open air festivities are an every day occurrence, he promises the best for all those who attend.

R. E. Raasch

Some twenty years ago Raasch came to California from the cattle country and cast his lot with the OFFCO Construction Co. where he has made a host of friends in the oil industry. Starting in the field and working his way up the hard way he is now holding the position as Secretary of that company.

Aside from spending many hours as a horticulturist around his home in Long Beach he finds time to be active in the affairs of the Elks as well as the Kiwanis Club. If hard work is the key to success Raasch and his committee will be the recipients of many congratulations on a job well done.

Charles T. McGuire

George M. Brown

Brown Mud Company Formed To Handle Jeloil Drilling Fluid

An announcement has just been made by Charles T. "Mickey" McGuire, Superintendent of California Operations of Halliburton Oil Well Cementing Co. of the sale of their Jeloil oil base mud department to the Brown Mud Company. Mr. McGuire further states: "this transfer was made so that my company can devote more time to development of new tools and techniques, so as to offer the industry the utmost in quality of products and efficiency of service."

George M. Brown, who has been in charge of Howco Drilling Fluid Department in this state for the past two years, is the general manager of the Brown Mud Company.

Ed Jackson and Dale Furman will work in the Los Angeles Basin area; Herb Worsham, Ventura area and Joe Vett in the Bakersfield area.

The Brown Mud Company has acquired the material inventory and mixing plants from Howco, therefore it is able to serve its customers in an efficient manner.

Brown Mud Company's main office and mailing address is 4606 W. 18th St., Los Angeles 6, California. Telephone is YOrk 7494, Ventura phone 8168 and Bakersfield phone, 99177.

Howard Exercises Stock Option

Harold E. Howard has exercised an option to purchase Republic's interest in the Howard Supply Company of Los Angeles, California. Mr. Howard and his associates now own all of the outstanding capital stock of Howard Supply Company and Mr. Howard will continue as president of the company.

The company has been appointed exclusive sales agents in California for Republic Electric Weld Casing and Tubing and will continue to represent Republic in the sale of Electric Weld line pipe and Buttweld pipe as heretofore. No change in management or personnel of the company is contemplated.

The company was formed on September 1, 1937, for the purpose of distributing Republic Electric Weld Casing, Tubing, Line Pipe and other products. Howard Supply now operates ten warehouses throughout California and carries a complete line of drilling and production equipment together with pipe, valves, fittings and industrial supplies.

C. E. Boone, who has been in charge of the land department at Los Angeles for Amerada Petroleum, has been made California manager for the company. This was announced by E. H. McCullough, who has been appointed manager for the country as a whole. McCullough was for some years California manager for the company.

Clayton Severns, oil producer and contract driller, has returned to Los Angeles from a three weeks vacation in old Mexico. His tour south of the border included stops at Mexico City, Fortune, Pueblo and Vera Cruz.

W. C. (Jack) Hartley, long identified with California oil development, is now drilling superintendent for New Jersey Standard at Maracaibo, Venezuela. His work in California was largely in association with Union, Superior and Miley Petroleum.

Russell Havenstrite, Bob Lytle and Leigh Battson were among members of the California oil fraternity in attendance at the Kentucky Derby. They made the trip to Louisville in Havenstrite's private plane.

Harold I. Munson has been named district manager in Southern California for Tide Water Associated, according to an announcement by A. A. Hock, credit manager for the company's Western division. Munson will make his headquarters at Los Angeles.

"Capillary and Permeability Variation" was the topic of an address by R. L. Parson, senior research engineer for California Research, Inc., at the meeting of the junior group of the Pacific petroleum chapter of the AIME.

George H. Roth, for the past five years senior geologist for Shell Oil Co. at Bakersfield, has resigned to become associated with Ross Cabeen as consulting geologist. Roth was a member of the Shell family for 13 years.

Lon Hughes has resigned as head of the petroleum industry public information staff of the Fred Eldean organization in Los Angeles. Hughes, who has been in charge of five western states for Eldean, plans to open his own public relations office in San Francisco.

Hughes Tool Advances Martin, Montrose and Rogers

Hughes Tool Company, through Fred Ayers, Senior Vice President of the Oil Tool Division announced recently expansion of the company's executive staff including three new vice presidents elected by the Board of Directors. The newly appointed executives, Dan J. Martin, M. E. Montrose, and Harry E. Rogers, all have been associated with the company for some period of time and were promoted by the company to their new capacities after having completed exhaustive studies in their respective divisions during the past year in connection with the company's expansion program. Mr. Martin becomes Vice President—Engineering and Research; Mr. Montrose, Vice President—Sales; and Mr. Rogers moves from his present capacity as Manager of Production to Vice President—Manufacturing.

Before joining Hughes in 1946, Mr. Martin spent some 22 years in military service. At the time of his retirement he held the rank of Colonel and had advanced to service as Executive Officer to the Chief of Ordnance, U. S. Army. Colonel Martin directed research and development of centrifugally cast cannon prior to World War II, and during hostilities supervised the production, procurement and inspection of all cannon and major aircraft armament. He is known in industrial circles as one of the nation's leading metallurgical and research engineers.

M. E. Montrose is well known throughout the oil industry of the nation as a sales and administrative executive, having established intimate contact with the oil industry during his many years' association as an executive of the General Electric Company and later as Vice President and General Sales Manager of the Lane Wells Company. Immediately prior to joining Hughes in 1946, Mr. Montrose was a director, President and General Manager of the Marion Power Shovel Company of Marion, Ohio.

Harry E. Rogers has enjoyed a long and successful career in production engineering in executive capacities, beginning with his association with the American Car and Foundry Company in 1910. Later Mr. Rogers became Works Engineer for Commonwealth Steel Company after which he transferred to the General Steel Castings Corporation in Pennsylvania in similar supervisory capacity. Mr. Rogers was Works Manager of the huge Nordberg Manufacturing Company of Milwaukee, Wisconsin, when Hughes invited him to join the company as Manager of Production in June, 1945, a position he has since held until the current promotion to his present new duties.

The appointments of the three new vice presidents and the creation of their special supervisory duties follow a long range plan of expansion and accelerated production envisioned by the Board of Directors of Hughes.

Noah Dietrich, Executive Vice President, was high in his praise of the company's expansion plans and the selection and promotion of executive personnel to increase the company's scope of operations. "Since Fred Ayers assumed the managerial direction of the Oil Tool Division of Hughes as Senior Vice President in October, 1944, he has spurred departmental interest in increased production and product research, while sales, and service in the field have been extended," Dietrich stated. "The plans now being put into actual operation are the result of concentrated studies by Mr. Ayers and the application of formulas gained from a wide background of domestic and international production and administrative experience. Hughes' enlarged operations in its every field of activity will be immediate," Mr. Dietrich said.

In his broad career prior to joining Hughes some four years ago as a Senior Executive and over-all director of the Oil Tool Division of Hughes, Mr. Ayers was one of the nation's leading consulting analysts in the domestic industrial field and spent eight years abroad reorganizing motor manufacturing companies and other industrial plants in Britain, Italy, France and Russia. In the early stages of the last war Mr. Ayers was called upon to assist in war preparations, and became first civilian advisor to General Burton O. Lewis in Ordnance, and later was drafted by General Knudsen to serve as Assistant Chief or WPB's aircraft manufacturing section. In 1943 he was invited to assist in reorganization of Hughes Tool Company's Aircraft Plant and after completing that mission was assigned to his present capacity with the Oil Tool Division of Hughes in Houston where his duties as Senior Vice President directly responsible to Noah Dietrich place him as the Company's third ranking executive.

Jack Smith Joins Howard Co.

Mr. Jack F. Smith, of 2214 G Street, Bakersfield, California, has joined the firm of the Nelson Howard Company, whose headquarters are 406 Kress Building, Long Beach, to represent them as sales engineer in the San Joaquin Valley.

Mr. Smith has had wide experience in and around Bakersfield for the past several years, having worked as driller and derrick man for several prominent operating companies and contractors. He is also widely known in the Valley as a former salesman for a well known washing tool company.

Mr. Smith will further the sales and engineering of KM-WASH #1 and #2, for cleaning out old wells, as well as completing new wells.

He may be reached at Bakersfield 28268—or through the L. W. Potter Trucking Company, where stocks of KM-WASH are carried for 24 hour service, at Bakersfield 32936.

Meter Assn. May Meeting

"Regulated Control of Gases and Liquids" will be the subject of a talk by James Gesner, of the Reliance Regulator Corporation, at the next meeting of the Southern California Meter Association. This meeting will be held at the Rio Hondo Country Club on Thursday, May 20, 1948, with dinner at 6:00 P.M.

As a second feature of the program, Mr. Edward Niederer, Division Engineer of the Southern Counties Gas Company, will discuss "Unitary Gas Regulation", a new approach to the problem of control.

Kern County OIL NEWS

OIL CONSERVATION usually sets a pace for Kern County Oil News because it is mixed up in it quite a bit. Every once in a while "a man bites a dog" and that of course makes news even in the oil country.

BUT THIS WEEK END marked the short month and "Conservation" was as busy as two crown blocks on a portable derrick. Our informant was busy adding up totals for April the thirtieth and following up on wild rumors.

FOUR CALLS to see if that whopper down in Wheeler Ridge terrritory was running over the "crown" or was it just **potato-land-dust** spudding over the fields in a whirlpool thermal. Anyway everything remained about "so" "so" in Kern's production.

CRAWLING OUT of a 50 mile gale with dust laden potency was for the most part the talk of the county as copy goes to the linotype. Oilmen from Oklahoma and Texas have brought their own weather with them at last . . . along with their "knowhow" so nobody complains.

GENTLEMENS AGREEMENT leads us to believe that Kern does a better job in conservation than the states that have laws governing conservation. At least two reports recently affording our interest makes us believe that. KERN FOLKS ought to be proud of that statement in so many other USA reports and to the extent that even the few violators or non gentlemen might have a change of heart. What is really needed though is a change in their production not their heart.

SEVERAL DERRICKS went down with the storm but not to any great extent as regards number and damage. The power conservation did more damage than the "blow" and just about the time some of the smaller independents were getting worked up and reaching for mantle piece the power got really more plentiful. Oilmen are still trying to figure things out. Lawsuits are impending and damage more irrepairable than at first estimated or forecast.

HUGH McCAY of Hogan Petroleum has a very few- at least fewer, if any at all, so called "Strikes Against" him. We are now talking about bouquets and brickbats. He may not be the kings' lexicon but he is no Piggly Wiggly because he "delivers" a powerful right and left hook to the jaw in question. Recently his verbal treatise was accompanied by a paper (the geologists know about papers) at the local civicwigs on "How the Oil Business Functions" . . . or does it. Hughie never peddles any "hooey".

HOLLIS BERTRAND is the name of a draftsman at Honolulu Geological facility in Bakersfield. He succeeded Mrs. Gladys Buckley who really resigned this time after several success stories and repeat performances on stories of "leave or not to leave." By the by Buckley's Letter Shop is a flourishing new enterprise with special announcements for sales promotion letter forms and organization notices and mimeographed miracles in ink.

J. C. CHESCHEIR, Publicity Chairman for the Coalinga-Kettleman Chapter API Division of Production has announced that President C. W. TOWNSEND will call the next meeting for May 19 when 200 members and guests will POLVADERO to the Country Club by that name for a "springwing" Gee-Pee's P Rman (Prman) W. B. Curtis a "vp" of API Dist. 5 will talk on "The Petroleum Industries Pub-

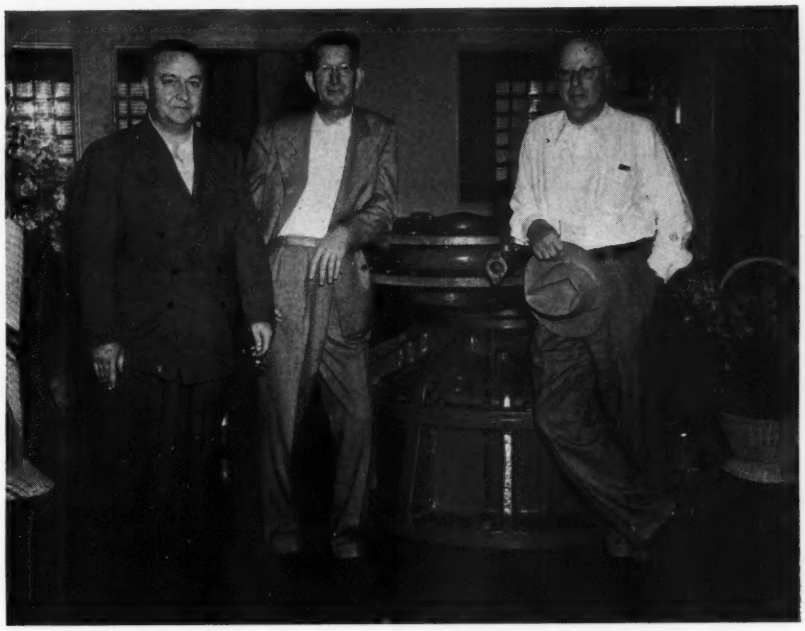
SAN JOAQUIN VALLEY OIL PRODUCERS annual press confab before the banquet and election of officers. Charles O. Premo, Secretary; Captain C. C. Spicer, Vice President; William M. Keck, Jr., director; Bascom Giles, Commissioner General, Land Office, Texas, principal speaker on Tidelands; and Allen Jergins, President.

lic Relations Program." Also on the same program "Electronics in Oilwells" by Lloyd Calhoun from the McCullough Tool Co.

GETTING BACK HOME most oilmen went fishing as usual on the day the fish started sprouting. This year it was a week end . . . both for the event and for the fish and fisherman. Cool weather, greater number of fish and fishermen, clear water and so forth . . . but at least one could see the fish.

FOR A WHOLE WEEK no one with news could talk because fish were biting and Kern oilwigs were practicing casting as well as non talking.

TOP FLIGHT NEWS of the month for Kern is AL TIETZE's retirement from Standard Oil Company of California production at Taft. After 35 years Al goes to Whittier to take life easy. Everyone it seems is all surprised. OMAR CAVINS an engineer and assistant to Al for some time is named general superintendent . . . But . . . KEN H. SHAFFER formerly personnel department at head office is



NATIONALWIGS J. L. Evans, West Coast Division Manager of National Supply Company, Jean Philipp, District Manager, Northern Division, and D. S. Faulkner, Vice President, at the instance of the "NASCO" Kern Open House.

General Manager of Northern Division of Soco and he will live in Taft . . . a new arrangement.

ANOTHER REASON WHY NEWS IS A SCARCE commodity seems to be blamed upon the national confab at Denver of the A.A.P.G. and from here, that we can remem-

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Log of a Diesel Fleet

"WRITING UP THE LOG"—*daily record of what happens to each unit of Santa Fe fleet of freight Diesel locomotives.*

At Barstow, California, one of the "home ports" of our fleet of giant Diesel locomotives, this big blackboard fills the side of a room.

It shows at a glance operating status, availability and performance record of each locomotive.

This visual evidence is a symbol of Santa Fe's railroading knowledge—ability to move freight with on-time performance and undivided responsibility to and from the West, Southwest, and Pacific Coast, and the Texas Gulf Coast . . . basic reasons for you to ship "Santa Fe—all the way."

For details on how we can serve you, see your Santa Fe freight traffic representative.

T. L. BOTHWELL, General Freight Traffic Manager
Chicago 4, Illinois

Santa Fe—*all the way*

Santa Fe

ber, went BILL KLEINPELL, several Independent Petroleum Gee-O-wigs, Evan Barker and others.

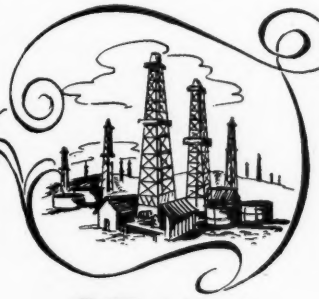
HERM WEDDLE of Standard Geological Department attended the San Joaquin Valley Oil Producers Association meeting the same as did 399 others, but perhaps no place along the line of 'food march' were there so many receptive moods expressed. First Herm himself was in a good fettle, then on his left was TED ELLSWORTH of Richfield . . . always the same . . . youngish and successful. On Herm's right were headman BILL NASH of the land and lease department of Soco and next to him Sheldon Sutliff of the same department.

DOUGLAS HASTINGS of Coalinga is also in Denver or on his way back from the great AAPG conference. Last time we saw him it was his "whiskers" The APIwigs at Coalinga were having a "blow" out at "POLVADERO" . . .

WE HAVE NOT HEARD FROM Dick Whitaker of Fresno for a long time.

THE GEOLOGICAL SECTION of the San Joaquin Valley Oil Producers Association's annual conclave. You mean to say it is necessary to caption these well known modern doodlebuggers . . . We think not.

TWENTY YEARS AGO: Democrate Vote heavy . . . H. K. Bachelder made the first hole in one at Kern River Golf Club (home of the Pioneer Petroleum Production



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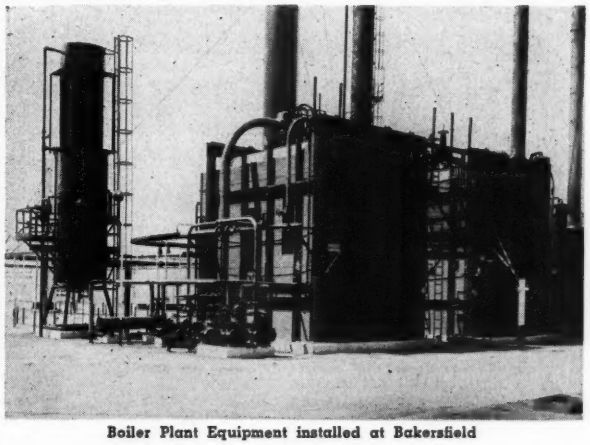

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SAN JOAQUIN VALLEY OIL PRODUCERS had everyone in Kern County that amounted to anything at all present at their annual meeting. Seen here are from (right to left this time) C. W. Harty, county supervisor in whose district most of the oil flows; supervisor W. R. Woollomes; banker Fred Carlisle; Clyde Hislop and friend with supervisor C. P. Salzer on the end. Left side Harry Hopkins, R. W. Bovey, and Howard Dallimore the new Manager of the Taft Chamber of Oil and Commerce.

People last year). HK was associated with Gilmore and later with 20th Century Fox. "L.D." was vice president and manager of the Kern County Bank from 1930 to 1945. New county chamber of commerce building was completed in 1928. And FORTY YEARS AGO (Governor) Earl Warren and Reginald Stoner had parts in a high school play in Bakersfield. THERE IS A NEWS ITEM FOR YOU.

"OIL CONSERVATION NEWS" for April, May and June is out as Volume I, Number 2 and in it contains many news items of interest.

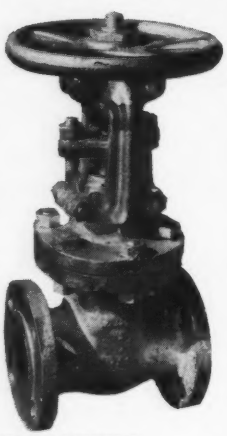
THE CCCOP, at its SJV District meeting on March 17 at El Tejon passed out its "Type Engineering Report" which illustrates the manner in which the committees engineering board would like to receive reports from various pool Engineering Committees.

THIS "TYPE ENGINEERING REPORT" is available to all company engineers as long as the supply lasts according to Barney Barnard local chief of the CCCOP. The report is quite complete and would be a valuable addition to an engineers library in our way of thinking. Also Nomination Ballots on Conservation have been mailed out to the operators in the various districts, of which there are 27 in Kern.

SPEAKING OF REPORTS

HARD FACING of VALVES

a *SPECIALTY* at **JOHNSON**



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CALIFORNIA OIL WORLD
706 So. Valencia St., Los Angeles 14, Calif.

ERNEST E. PYLES new president of the San Joaquin Valley Oil Producers Association takes on his new responsibilities with usual vigor in accepting assignments of hard work and distinction.

Here he is chatting with H. F. (FRED) OWEN just before the meeting in which conversation Fred Owen is predicting the success of ERNIE'S regime and offering personal and collateral cooperation.

AND SUCH the second edition of the O.C.N. is now off the press and is available to those requesting copies. Write CCCOP, 855 Subway Terminal Building, L.A., 13.

MAX BALL, Director of Oil & Gas Division of the Department of Interior has released the "Report on the Oil Situation" . . . Write for this too, if you are interested.

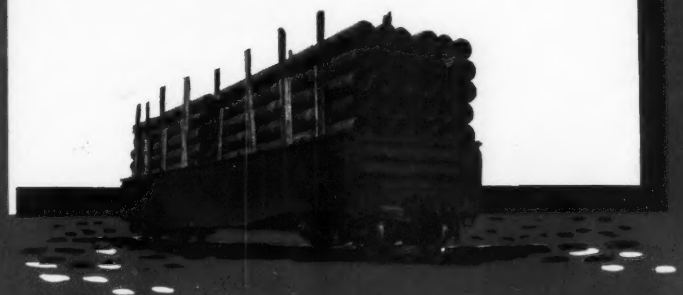
TIDELANDS VOTING hit new highs all over the country. Bills before Congress were approved by local Kern County Chamber of Commerce and they in turn called upon County Officials to take action. Kern County Board of Supervisors really did its part, too. Latest look is that veto over-riding is assured. Due to sad experiences oilmen in Kern do not wish to lease with Federal Government according to the Conservation people around here.

THE HEYDAY OF MAY on its first day was not seriously appraised except by oil men here in Kern who have been crossing their fingers upon thinking of purchasing agents . . . They are supposed to have a May Day present in the form of a price rise. This has been expected for some months.

BARNEY told us that nomination ballots were mailed out to the operators in the various districts on April 27th. Need more be said?

OUR MER'S ARE ON THE MEND and one field has been approved for an increase of 9,105 B/D for May. All kinds of tests and runs have proven up the field. More next month on the good news. New

CONDUCTOR PIPE



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wells to April 17 total 808 with 339 for redrills. Last year it was 604 to 272.

JACK GORDON, Standard Oil Company of California's Kernwig of Standard is the proud district manager of the Standard trophy for junior livestock men. This reminds us that not only Standard Oil but San Joaquin Geologists are apprehensive that oil is from the soil and should be treated well at county and state fairs. Sometimes this

NATIONAL'S NEW HOME AT BAKERSFIELD is an epoch marker in the oilwell supply division of the petroleum industry and it proves up the stability and importance of Kern County and the San Joaquin Valley. No longer do people of the industry come here temporarily and await transfer. Jean Philipp is the "gm" for San Joaquin Valley Northern Division of the California National Supply network . . . of branch offices.

horse racing fund is generously helped by considerable oilmen who own steeds of speed. The exchange or odd change goes to the state for premiums on agricultural exhibits.

SAN JOAQUIN GEOLOGICAL SOCIETY went on record favoring OIL EXHIBITS by Counties at State and County Fairs. The very idea that "oil comes from the soil" should stimulate enough interest. GENE VALLAT of Ohio Oil presided as president or chairman of a very successful and largely attended meeting of the SJ Society of Geologists and learned that Kern county should have an oil exhibit at both the state and county fairs. The group went on record favoring and requesting suitable funds be placed before the audit committee . . . in a premium to stimulate exhibiting mineral and oil by state exhibiting associations.

NATIONAL SUPPLY COMPANY opened its new Kern offices a Saturday orsoago. Real progress and ingenuity were shown exclusively throughout the day. Oil prosperity, and knowhow comes from understanding.

E. E. PYLES as president of San Joaquin Valley's Oil Producing Association has met with grateful appreciation by all.

OWEN JOHNSON of Johnson Valve was among the out of town fishermen come May first this year.

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OUT AT THE PRACTICE range where most of the folks go to sharpen up their golf irons and woods, we saw the partner of the B&B Tool . . . (Brownie's Partner) swing a mean arch with his clubs.

U.S. 99 is now showing up along Pierce Road intersection. Hard by its activity is the Western Oilfields Supply Company which will fare more than other supply firms along Supply and Contractors Row.

TINE GAISER is another Islander as regards U.S. 99 but we hope

HARRY PHOENIX OF OILFIELDS TRUCKING has purchased a new car or two for the firm's employees who are ever alerting themselves to the daily needs of supervision and service.

KERN POLITICS ARE HOT again this year as three supervisors have to contest for renewals of their office. Almost every supervisor is the most agreeable person and in no mood for debate.

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THIS LAUGH

OFF!!

Voice (to visitor at gate of nudist colony). "Whatcha want?"

Visitor: "I want to join."

Voice: "You can't with that blue suit on."

Visitor: "That's not a blue suit—I'm cold!"

A notably generous permanent guest at the hotel found a new waiter serving him at breakfast one morning and inquired:

"Where's my regular waiter, boy—that fellow called Sam?"

"Well, Boss," beamed the new waiter, "Sam ain't gonna serve you no more, cause last night I won you in a crap game!"

Someone shipped two rabbits to the East by motor transportation. The crate arrived with two rabbits. That's fast transportation.

Employer: Myrtle, who told you that you could neglect your office just because I give you a kiss now and then?

Stenographer: My attorney.

"What foah dat doctah comin' out to youh house?"

"Ah don' know, but Ah thinks Ah has a little inkling."

One of those very talkative women buttonholed a fisherman who was minding his own business and said, "Aren't you ashamed of yourself? A great big fellow like you might be better occupied than in cruelly catching this poor little fish."

"Maybe you are right, lady," said the fisherman. "But if this fish had kept his mouth shut, he wouldn't be here."

"Where'd you pick up the red lantern?"

"Some dern fool left it back there by a big ditch."

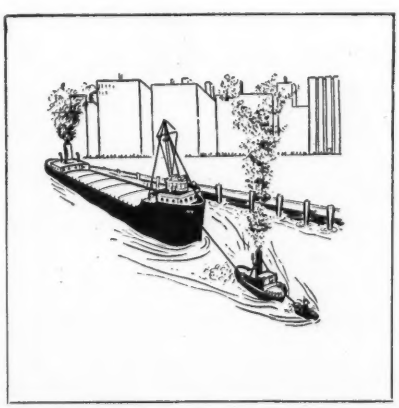
Fire broke out in a large hotel in which there were many guests. They were all awakened and hurried out as quickly as possible. One of the last guests to leave the hotel was a man who was very proud of his iron nerves. He walked up to the other guests and said: "I was not the least bit excited. I washed and combed and dressed and smoked a cigaret. There was no cause for excitement."

A listener said to him: "Then why didn't you put on your pants?"

John took his five-year-old son to church for the first time. When the service was over and John and the boy were outside, he asked his son, "What part of the church service did you like the best?"

"Well," replied the youngster, "the part of the service I liked the best was when they passed that plate of money. I got ten cents. How much did you get?"

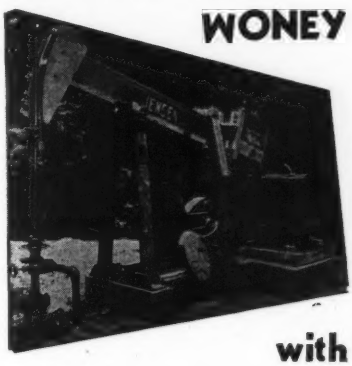
An old Irishman collapsed in the store and a crowd gathered. Amid the chorus of suggestions, one Irish lady kept shouting, "Give the poor man whiskey," but no one paid any attention. Then the agonized voice of the man who had collapsed rose above the din. "Will the lot of ye hold your tongues and let this fine Irish lady speak?"



Clerk (to manager of store): "When I sold that lamp why did you want me to bill him extra for the shade, electric cord and a bulb?"

Manager: "Oh, he's our local automobile dealer."

JENSENS Save WONEY



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Los Angeles Basin

Long Beach Well Drills

Los Nietos Co.'s wildcat venture, East L. B. Comm. No. 1, in Sec. 33-4s-12w, whipstocking under the townlot sector of East Long Beach is drilling at 8,247 ft. Shell Oil's Alamitos No. 49A in Sec. 29-4s-12w has been placed on the pump for a current yield of 149 barrels of oil, cutting 15 per cent. Original bottom is 11,000 ft. and plugged back depth 9,425 ft.

Palmdale Try Digs

Near Palmdale in Antelope Valley, Antelope Valley Dev. Co. is prospecting ahead at 3,780 ft. with Del Sur No. 1 wildcat in Sec. 26-7n-13w.

Puente Well Due For Pump

Hugh Alan Bardeen is ready to rig pump to Lautenbach No. 1 in Sec. 10-2s-10e at Puente, after water shut off was okay and the well bailed. Total depth is 2,009 ft.

Athens Adds Try

Shell Oil has made location for Union-Poindexter No. 3 test in Sec. 12-3s-14w in the northwest Athens area. This is not far from the company's Union - Poindexter No. 1, which was finished at a plugged depth of 8,642 ft. The new drill site is near Shell's Moser Comm. No. 1 producer. Warren L. Meeker and Russell D. Garner have staked location for Campbell Comm. No. 85-1 in Sec. 12-3s-14w.

Sunset Beach Try Inactive

Still only a location is Standard of California's Lomita Land & Water Co. No. 3-1 test in Sec. 19-5s-11w at Sunset Beach, Orange County. The site is north of the coast highway and about two miles south of Seal Beach. Houghton Comm. No. 1-1 wildcat in Sec. 36-2s-12w near the Santa Fe Springs field is preparing to perforate and test. Total depth is 14,427 ft., with 1,500 ft. of 8⅝-in. pipe landed on bottom. Del Aliso No. 2 in Sec. 29-3n-16w at Aliso Canyon is preparing to run liner. Plugged depth is 6,900 ft., with casing set at 6,755 ft. CSO Fee No. 101 in Sec. 2-3n-17w is a location in the Pico Canyon area.

Newhall Try Quits

Mutual Development Corp. has abandoned Sanborn No. 2 in Sec. 6-3n-16w near Newhall at 6,301 ft. On formation test of the interval of 6,215-6,301 ft., recovery was negative.

Elsmere Try Scores

Nelson-Phillips Oil Co. evidently has scored a new oil discovery in

In the West Coyote Field at Standard Oil Co.'s Murphy-Coyote well No. 211. Rear row, left to right: C. I. Waterman, driller; V. B. Journigan, derrick; W. P. Beckner, rotary helper; front row, left to right: H. B. White, rotary helper; J. D. Black, rotary helper.

Sec. 31-4n-15w in the Elsmere area, approximately four miles northeast of Newhall. The well flowed at a rate of 75 barrels of 16.4 gravity oil a day, cutting 1.3 per cent, from a plugged depth of 717 ft.

Started and rigged originally more than five years ago by another operator, the project stood idle until taken over by Nelson Phillips and spudded in last March. The hole was carried to 2,242 ft. before it was plugged back. Location falls on a 175-acre lease near Mojave Road.

Chester Nelson and Gordon Phillips head the company. Nelson is president of Lyon Van Lines and a director of Lyon Van and Storage Co. Phillips is owner of important oil production, particularly in New Mexico. Their property interests at Elsmere extend to ground adjacent to the company lease.

Whittier Try Starts

Foundation is in for No. 1 well sponsored by Bert Branch, Operator, in Sec. 34-2s-11w at West Whittier. Livingston Drilling and Dev. Co.'s Dewey No. 1 in Sec. 1-3s-11w is awaiting on unit to pump from a finishing depth of 8,521 ft.

Chino Test Making Hole

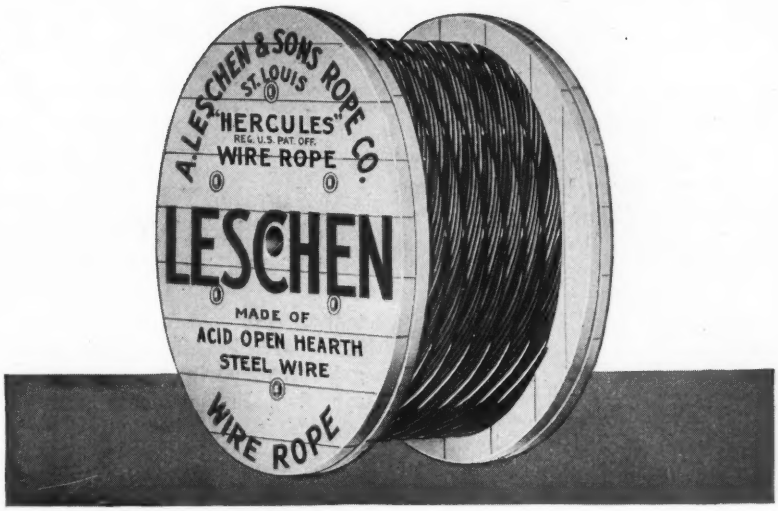
In Sec. 33-2s-8w in the Chino Hills, Chino Hills Oil Co. is drilling gray sand at 1,645 ft. in No. KB-4 wildcat.

Inglewood Well Plugs

Basin Oil Co. is preparing to run blank liner to 10,450 ft. in No. 7-1 in Sec. 28-2s-14w at Inglewood, following a plug back job from 11,123 to 10,711 ft. Present program will entail first a test below liner, with perforating and trials uphole at selected intervals the next operational phase. The 7-in. casing is set at 9,857 ft. No. 1-1A in the section is drilling at 9,610 ft.

Placentia Job Spudded

In the vicinity of Placentia in Orange County, Universal Consoli-



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dated has spudded Wiley No. 1 exploratory hole in Sec. 5-4s-9w.

Brea-Olinda Test Working

Following an electric log run and a dipmeter survey, Union Oil is conditioning its Gaines No. 1 hole on Sec. 10-3s-9w at Brea-Olinda. Depth is 6,231 ft.

Lawndale Drill Scene

Seaboard Oil is drilling Johnson No. 3 in Sec. 17-3s-14w at Lawndale slightly above 7,150 ft. Seaboard-Comm. No. 6-1 in Sec. 20-3s-14w has reached 7,388 ft. General Exploration, coincidentally, is building rig for Powell No. 1 test in Sec. 21-3s-14w.

Beach City Active Area

Brooks and Bauerdorf are preparing to redrill the old Burkett No. 2 well at 16th and Magnolia streets in the Huntington Beach field. They also have taken over the G. A. Stine, Pauley Inv. No. 5 well at 17th and Magnolia for redrilling purposes. D. D. and Dorothy Dunlap have rig up to drill Farnsworth No. 1 in Section 12-6s-11w.

Los Angeles Try Sidetracking Fish

Richfield Oil's interesting Boyle Comm. No. 17-1 in Sec. 35-1s-13w test at Sixth and Mott streets in the Boyle Heights district of Los Angeles is preparing to sidetrack drill pipe fish. Present depth of the hole is 4,694 ft. Frequent streaks of oil sand interbedded with shale, encountered below 3,580 ft., are described as encouraging. Oil sand, however, encountered to date is held as questionable production value. The company plans a thorough and complete test at this location. Community lease No. 17 contains 40 acres. Richfield and Boyle Royalty Co. jointly have 30 such leases in the district. L. A. River Comm. No. 1-1A in Sec. 34-1s-13w is drilling at 4,184 ft. Electric log was run to 4,156 ft.

Oceanside Well Begins

Drilling operations have been inaugurated with Charles F. Holmes' Holmes No. 1 wildcat in Sec. 31-11s-4w near Oceanside in San Diego County. Present depth is 915 ft.

Herley-Kelley Enter Athens

Jack Herley and Paul L. Kelley have taken over the former Shell Title Insurance & Trust No. 1 well in Sec. 13-3s-14w at Athens and are cleaning out at 6,597 ft.

Stockton Try Digs

Having successfully recovered lost fish, Amerada Petroleum is drilling Martenet No. 25-2 in Sec. 2-2n-8e in the Stockton area of San Joaquin County at a depth of 3,652 ft.

Afton Test Rigging Up

Derrick is being rigged for Richfield Oil's Afton Comm. No. 2-2 test in Sec. 27-19n-1w near Afton in Glenn County.

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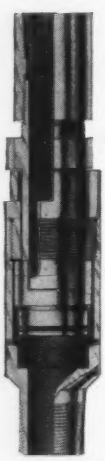

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TO DRAIN TUBING you need only lower the tubing string slightly, introduce a small amount of right hand torque and pick up. This places the sealing ring above the drain ports for full drainage of fluid.

TO JAR TUBING you lower the tubing string and turn left to take up the slack, then pick up 5 or 6 points and turn right until jarring action is felt. You can repeat as many times as necessary!

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Guadalupe Well Tests

In the Guadalupe area in San Luis Obispo County, Continental Oil has set casing at 2,680 ft. in Sand Dune-LeRoy No. 2 in Sec. 2-10n-36w and is testing. Property in the area is held by Continental, General Petroleum and Union.

Lompoc Try Digs

East of the Lompoc field, drilling is proceeding at 2,888 ft. with Union Oil's Crandall-Government No. 1 wildcat in Sec. 11-7n-33w, Santa Barbara County.

Zaca Try Reaming

Tide Water Associated's Luton No. 93 in Sec. 29-8n-31w near Zaca Creek in Santa Barbara County is down 3,710 ft. and reaming. Chamberlain No. 22 in Sec. 33-8n-31w is drilling below 1,400 ft.

Simi Venture Still Working

Equipment repairs are being made on Cal-Ven Petroleum Corp.'s Wiekhorst No. 1 wildcat in Sec. 11-2n-18w at Simi. M. H. Marr, meantime, is starting Marr Ranch No. 1 in Sec. 30-2n-17w.

Four Deer Well Pumps

Pumping 85 barrels of oil daily from 5,270 ft., Sunray Oil Corp. has added Los Flores No. 8 as a new well in Sec. 4-8n-33w in the Four Deer field. Careaga No. 2 in Sec. 5-8n-33w is down 4,680 ft. and reaming for a try.

Edna Well Sets Pipe

Having set casing on bottom at 2,120 ft. in Mutual No. 2 in Sec. 5-32s-13e in the Arroyo Grande-Edna area, Edwin W. and Harold R. Pauley are testing water shut off in the well.

Bardsdale Well Drills

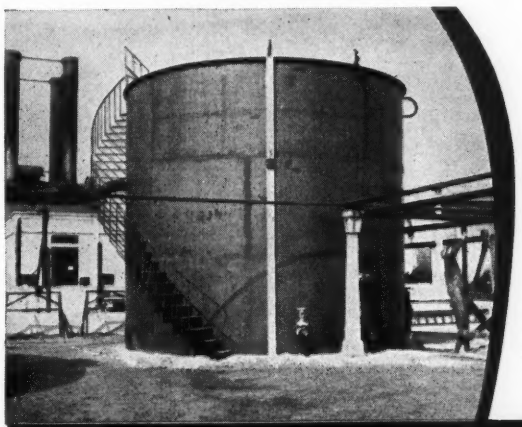
Beloil Corp., Ltd., is drilling deeper at 3,455 ft. with Elkins No. 2 in Sec. 7-3n-19w in the Bardsdale field. Union Oil is rigging Dryden No. 16 in Sec. 12-3n-20w. Dryden No. 15 is running tubing to complete at 3,787 ft.

Santa Maria Job Digging

Black Nugget Oil Co. at last reports was drilling Chiloensis No. 1 in Sec. 15-10n-35w at Santa Maria Valley below 4,750 ft.

Petaluma Well Pumps

Trico Oil and Gas Co.'s Petaluma Comm. No. 5-2 in Sec. 30-5n-6w, a discovery well in the Petaluma area in Sonoma County is pumping 32 barrels of 19.7 gravity oil a day from 971 ft. Locations falls about 45 miles north and a little west of San Fran-



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American engineering and American Welded Steel Storage Tanks are a combination that solves *any* storage problem — efficiently, economically and permanently.

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● **The higher your other costs go, the more you gain by the ENDURANCE built into Case Oilfield Engines. It means a minimum of man-hours for routine attendance, seldom a shut-down for special attention. It means continued economy of fuel and oil. It means low upkeep and long engine life.**

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3 SIZES of Case Oilfield Engines cover a wide range of power needs at efficient load factor. They are the 28½ H.P. Model "SE," 42 H.P. Model "DE," and 61 H.P. Model "LAE." For full information and detailed specifications, call the distributor who maintains service in your area. J. I. Case Co., Racine, Wis.

CASE

cisco and 40 miles south of the Russian River. The town of Petaluma is California's great poultry center.

Ojai Try Rigging Up

Republic Operator, Inc., is rigging McGregor-Agnew No. 7-1 in Sec. 74n-21w in the Ojai area, Ventura County. Bruton No. 1-A in Sec. 29-5n-19w is drilling deeper at 3,910 ft.

Montalvo Try Cores

On Sec. 33-2n-22w in the Montalvo area, Standard of California is spot coring at 9,667 ft. with Eastwood No. 1 test. McGrath No. 62-4 in Sec. 30-2n-22w is preparing to run liner to complete at 9,314 ft. The 7-in. casing is cemented at 8,809 ft.

Capitan Try Drills

In the Capitan area, Rothschild Oil Co. is exploring ahead below 3,600 ft. in Careaga No. 1 wildcat in Sec. 36-5n-31w in Santa Barbara County.

Yolo County Gas Try Begins

Standard of California is initiating Hermle No. 1, a gas test in Sec. 22-11n-1w in the Dunnigan Hills, Yolo County. The test is south and west of Texas Co.'s Dunnigan Unit No. 1 discovery well, producing from around 2,800 ft.

Denverton Gas Try Digs

Honolulu Oil Corp. continues to drill ahead at 2,340 ft. with McCormack Estate No. 1 gas test in Sec. 36-5n-1w in the Denverton area of Solano County. On formation trial between 1,900 and 1,926 ft., the well flowed gas at a rate of 3,800,000 cubic ft. a day. Well site is two miles northeast of the Potrero Hills gas field and a similar distance north of National Investors Fund's abandoned Burke and Donohoe No. 1 well.

Progress is the American Way of life. The petroleum industry IS progressive.

San Joaquin Valley

Round Mountain Wildcat Starting

General Petroleum is preparing to drill Railroad No. 5 wildcat in Sec. 23-28s-28e in the Round Mountain area. Location is about one-half mile southeast of the company's Railroad No. 1, which explored without success more than five years ago.

In the Shale Hills area, General has abandoned Berry No. 11-15 test at a total depth of 10,607 ft. The project was electric logged and sidewall sampled before finally deserted.

Ninkovitch No. 62-9 in Sec. 9-30s-21e near the McKittrick field is drilling steadily ahead at 9,930 ft.

Guijarral Try Listed

Barnsdall Oil has announced it will drill an exploratory hole known as Fred Smith No. 1 in Sec. 34-20s-16e in the Guijarral Hills, Fresno County. Location falls about two miles south and east of the Pleasant Valley field near Coalinga.

Raisin City Test Scene

In the Raisin City area in Fresno County, K. R. D. Syndicate has staked location for No. 1 test in Sec. 10-15s-17e. Drill site is a half mile northwest of Real Oil's San Joaquin Properties No. 1 producer. The latter is producing an estimated 70 barrels of 19 gravity oil daily from a redrilled depth of 5,227 ft. It is in Sec. 11-15s-17e.

Jasmine Try Rigs

Pacific Oil & Gas Dev. Corp. is rigging up Cantleberry No. 71-22 in Sec. 22-25s-27e in the Jasmine area, Kern County. The well will drill one location north of the discovery hole in the area. Pacific already boasts several good producers in the area, which were finished in an oil zone between 2,700 and 2,800 ft. Quinn Ranch Oil Co., meanwhile, has given up Quinn No. 1 wildcat in Sec. 15-28s-27e. It is bottomed in granite at 2,821 ft.

Edison Adds Try

East of the Edison field, Morton and Sons is ready to start a 5,000-ft. test in Sec. 15-30s-30e. This is approximately one-half mile southwest of an unsuccessful prospect job drilled and abandoned at 5,061 ft. in 1930. The company heretofore has confined its field operations to the Los Angeles Basin.

Ant Hill Test Rigs

Barnhart-Morrow Cons. is rigging derrick for DeMille-Portals No. 1 in Sec. 33-29s-29e in the Ant Hills area, Kern County.

NO ROTATION REQUIRED
when you use the
Security
CASING SCRAPER
for your well completion program

EXCLUSIVE DESIGN enables the SECURITY CASING SCRAPER to be operated with an up and down movement eliminating the necessity of expensive rotary equipment. Because the cutters contact the full inside of the pipe, casing can be cleaned without rotating. Regular well drilling service equipment can be used with the scraper operated on wire line, tubing, or drill pipe.

THE SECURITY CASING SCRAPER thoroughly removes all obstructions, perforating burrs, and foreign matter from within casing walls . . . assuring free downward passage of all tools and a positive seal for washers, packers, and swabs. Especially valuable for cleaning casing after gun perforating. Shears clean by full contact of the casing circumference at all times.

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Terra Bella Venture Digs

Drilling has reached 760 ft. in the wildcat sponsored by Hudson Oil Co., Inc., in Sec. 24-22s-27e in the Terra Bella area, Tulare County. It is called Hudson-Fay No. 1. W. J. Carter's Carter-Chedester No. 1 in Sec. 21-18s-25e is a location near Visalia.

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Oil Base
HAND CLEANER
Easy on greasy hands
All you do is rub a dab of Oil Base Hand Cleaner on your hands, like ordinary soap, until grime dissolves—then wipe off on rag or paper towel. Needs no water. Cuts grease, oil, tar, creosote, paint, printers' ink, Black Magic oil base drilling fluid. Soothes cuts, scratches and chapped skin. On sale at supply stores. Write for free sample
Packed in 1 lb. and 5 lb. cans
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Pottenger Area Wildcat Staked

Texas Co. has location staked for Universal No. 1 wildcat in Sec. 19-30s-21e in the Pottenger area in Kern County, approximately six and one-half miles directly west of the town of McKittrick. Universal Consolidated is the holder of a total of 3,666 acres of Government leases in the area to be questioned. The north 1,946 acres were leased to Texaco. Interest in the present undertaking is shared equally by the two companies.

In the Wheeler Ridge area, Texas Co. and Independent Exploration are drilling at 2,090 ft. with KCL No. 2 in Sec. 6-10s-20w. Texaco's Hogan-CCMO No. 1 test in Sec. 4-31s-29e in the Mountain View area is reaming after running electric log to bottom at 6,960 ft. Westpet Unit Two No. 15-29 in Sec. 29-30s-22e near McKittrick is testing shut off following the setting of casing at 4,550 ft. Original depth is 4,880 ft. and plugged back depth 4,650 ft.

Cuyama Valley Wildcat Fishing

Ned Barmore is fishing drill collar and bit lost in Woods No. 1 in Sec. 9-10n-28w at Cuyama Valley. Present depth is 2,505. Richfield Oil continues to drill and spot core ahead at 1,423 ft. with Russell No. 1 in Sec. 5-10n-27w. Bandini Petroleum has started work on Azzarello No. 1 in Sec. 34-11n-26w on a 1,200-acre block.

Lost Hills Project Digs

About two miles west of the Lost Hills field, Universal Consolidated is making hole ahead in gray sand and shale at 2,535 ft. with Bates No. 1 in Sec. 22-26s-20e. Company leases in the area approximate 2,000 acres.

South Dome Wells Drills

Standard of California's SF & FL No. 4-2 in the Kettleman Hills South Dome area is drilling in shale at 12,149 ft. Location is in Sec. 12-25s-19e, Kern County.

Kettleman Hills Middle Dome Corp.—Standard and Bolsa Chica—has announced location for the first well of a drilling program mapped out for the Middle Dome area. It is 1,200 ft. south and 200 ft. west of the northwest corner of Sec. 30-23s-19e. This is about 1,300 ft. northwest of the Eocene discovery well.

In Lindsay Hills in Sec. 36-27s-21e, Standard is conditioning hole to run formation test in Van Sicklen No. 45, now bottomed at 7,950 ft. KCL 25 No. 1-6 is a location near Round Mountain in Sec. 13-28-28. Towles Estate No. 4 in Sec. 7-27s-23e in the Semitropic area is ready to begin work. Tupman No. 2 in Sec. 22-31s-29e at Arvin was completed at a plugged depth of 7,505 ft. and pumped one barrel of oil in three hours and then pumped off.

FOR SALE

Lufkin Pump Unit Complete with engine, price $2700.00, capacity 7000 ft., Gear Box SC-56, Peak Torque 255682, H.P. at 20 SPM 51.7 Steel Sampson Post and Beam, Superior Gas Engine 2 cyl. 30 H.P., Gas Scrubber, Cooling tower. Can be seen at Derby Lease Mountain View. Contact Larkie Flatt, Brower Building, Bakersfield. Phone 3-4126.

STEAM RIG FOR SALE

POWER PLANT:
4 Broderick Boilers 350 lbs. Working Pressure, equipped with 500° super heaters, skid mounted
2 Wilson Snyder 7¼ x 4½ x 10 Boiler Feed Pumps unitized
NOTE: These boilers were completely retubed within last six months

DRAWWORKS:
National Supply Drawworks—F.E.D. 23-9
1 14 x 14 Ideal Steam Engine
2 - 40" Single Hydromatic Brakes (on each end of drum shaft)
NOTE: Drawworks was overhauled within last 10,000'

MUD PUMPS:
3 - 15½" x 8¼" x 20" National Supply Steam Pumps
1 - 14" x 7¼" x 14" Mud Pump used for circulating water into Hydromatic Brakes and general use of high pressure water around rig.
1 - De-Sander and 2 Overstrom Shale Shakers

PRICE: $35,000 (FOB California)
including: 1 Emsco Core Winch powered by one 12 x 12 twin engine
1 12 x 12 Ideal Steam Engine mounted under rig floor complete with rotary table drive attachments to drive any API Rotary Table
12,000' of ⅝" Sand Line.
Advertiser, Box H, c/o California Oil World
5/5/b

Mount Poso Try Starts

M and S Oil Co. has started drilling No. 1 wildcat in Sec. 15-26s-28e in the Mount Poso area. Present depth is below 100 ft. Dumm Bros. Petroleum Corp. is preparing to drill Mount Poso No. 1 on the southwest corner of the northwest quarter of Sec. 27-26s-28e.

Elkhorn Valley Wildcat Deeper

Elkhorn Oil & Dev. Co. is drilling at 1,240 ft. with Norris No. 1 in Sec. 28-32s-22e in Elkhorn Valley, north of the Carizzo Plains area.

Push Buttons Shift Fuels of Diesel Under Load

Another advance toward simplicity of operating dual-fuel diesel engines has resulted from the development of automatic electric controlled accessories operated by two push buttons. The new style engine is announced by The National Supply Company's Superior Engine Division, Springfield, Ohio.

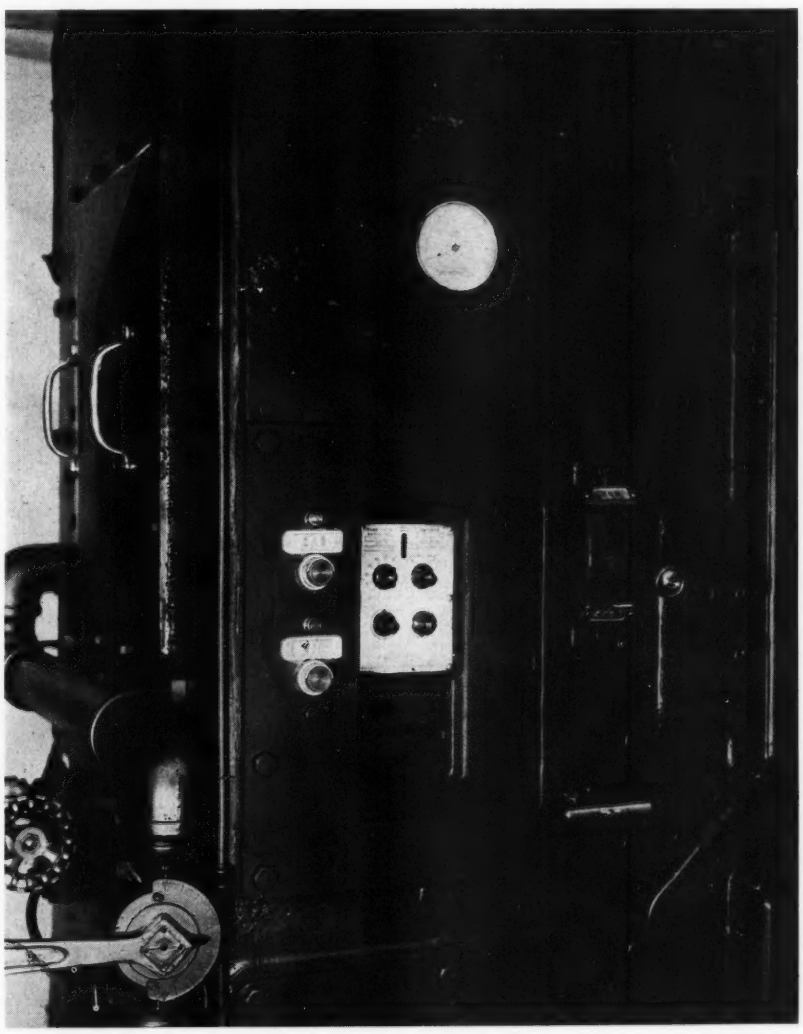
With the new type of control these engines give no indication of fuel changes while operating under full or partial loads except by indicator lights above the two change buttons or, if desired, an alarm signal. All mechanical operations that are required in converting the engine from one fuel to the other, except pushing one of the two buttons, are made automatically.

Changing fuel conditions in America have influenced the development of dual-fuel engines for several types of service, particularly where availability and price differentials have to be considered from time to time or are dependent upon season or other conditions. Such an engine permits the burning of various combustible gases, including waste gases from disposal plants, in whatever quantities that are available to power plants. Dual-fuel engines have also been particularly valuable in drilling oil wells, and many Superior dual-fuel engines are being applied in this service.

Fundamentally the dual-fuel engine substitutes a portion of gaseous fuel mixed with combustion air for a corresponding portion of liquid fuel. The engine continues to operate on the diesel cycle with compression ignition. When the Superior dual-fuel engine operates as a full diesel, with fuel oil alone as fuel, there is no functional difference between it and other diesels not equipped for dual-fuel—that is, the fuel oil is ignited by the heat of compression. With gas as the fuel, however, ignition by the heat of compression alone is not dependable and therefore a small quantity of fuel oil is injected into the combustion chamber. This oil ignites readily and in turn ignites the gas-air mixture in the cylinder. The amount of this pilot oil is a small percentage of what the fuel oil consumption would be if the engine were operating as a full diesel on fuel oil alone.

Superior dual-fuel engines are started and stopped in the same manner as a conventional Superior diesel engine by means of a "Stop-Run" lever and a separate "Air Starting Pull Handle." After the engine is started, operation is automatically regulated by the governor and the special Superior controls.

The push button control panel, which is mounted on the governor housing, is used only when the en-



Push buttons on the new Superior dual-fuel diesel engine convert it from oil to gas and from gas to oil while running under load. Other controls are the "Run-Stop" lever (right), "Air Starting Pull Handle" (below), governor adjusting knobs (inset, center), and manual gas line valve (lower left).

gine is running. One button is marked "OIL" and has an amber indicator light. The other button is marked "GAS" and has a white indicator light. These push button controls are connected with an automatic alarm and safety system, and through electric relays operate a solenoid valve in the gas line.

The amber light is on when starting the engine, and stays on after pushing the "GAS" button until the governor has regulated the gas flow and reduced oil flow to pilot volume.

Before converting to dual-fuel operation the hand operated shut-off valve in the gas line must be open. When the "GAS" push button is pressed, the white light glows and control shaft admits gas into each cylinder through feather valves that are held closed by light springs and opened by the suction created by the flow of air into each cylinder. At the same time the governor moves back to hold the fuel pump racks in pilot oil position by means of the spring slip linkage, and to regulate the position of the gas butterfly valve as required by engine load.

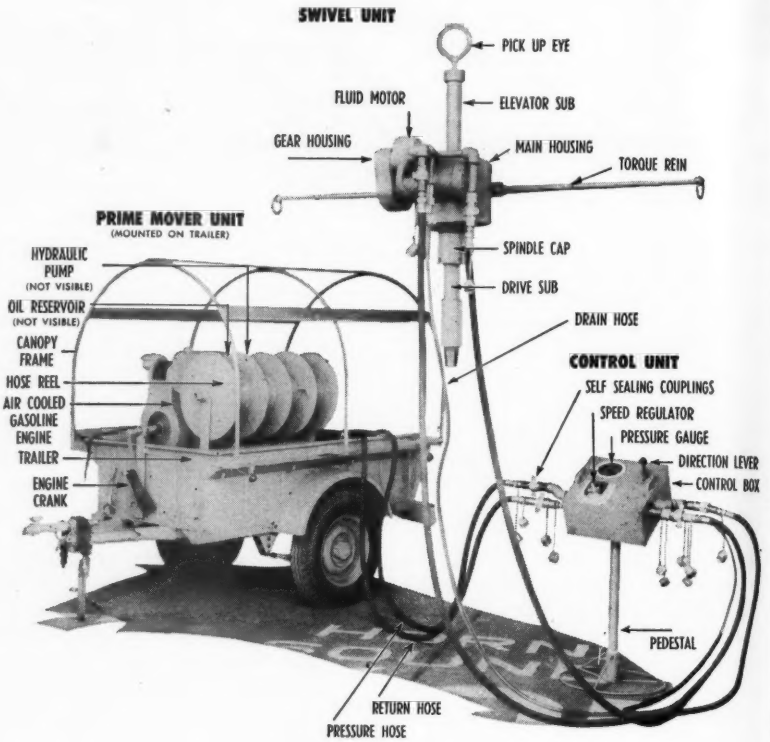
If there is not enough gas for the engine load, the governor automatically increases oil fuel injection. When this occurs the amber light glows again. If the engine load then decreases, or if the gas supply increases beyond load requirements, oil fuel injection is reduced automatically to pilot ignition volume and the amber light goes out.

If it is desired to operate the engine on less than full load gas requirements, the hand operated valve in the gas supply line may be set on its graduated dial to restrict the flow of gas to the desired amount. The governor then increases oil fuel injection automatically to the required amount.

To change back from dual-fuel operation to oil operation, it is only necessary to press the "OIL" push button. The engine may be stopped simply by moving the standard control lever to "STOP" position.

Bowen Power Swivels

Bowen Power Swivels are used for all types of light rotary operations because they eliminate the necessity of moving in kellys, rotary tables or other heavy equipment



BOWEN POWER SWIVEL

for light, short time rotary work and because they eliminate the inefficiency and even danger of rotating strings by hand. Thus, they ideally provide the driving power for internal cutting of casing, drill pipe and tubing for drilling out cement following squeeze jobs; for backing off sucker rods and tubing; for scraping liners, etc.

Bowen Power Swivels are the indispensable choice of operators whenever it is necessary to perform light short time rotary work where fire hazards exist because the gasoline engine can be located away from the danger area.

Bowen Power Swivels consist essentially of a Prime Mover Unit, a Control Unit and a Swivel Unit combined by hydraulic hoses. The Prime Mover Unit consists of an Air Cooled Gasoline Engine coupled through a gear reduction to a Hydraulic Pump—both mounted above an Oil Reservoir. The Hydraulic Pump is provided with a relief valve to protect the entire assembly from overloading. The Control Unit consists of a Pedestal and a Control Box within which are located a Direction Lever, a Speed Regulator and a Pressure Gauge. The Swivel Unit consists of a Fluid Motor coupled through gear reductions to a Drive Sub. An Elevator Sub is provided so that the unit may be easily suspended in the derrick. The hoses are in fifty foot lengths to permit operation of the Swivel Unit high in the derrick and to permit location of the Gasoline Engine at a safe distance from any danger area. The hoses are equipped with Self Sealing Couplings which provide easy connecting and disconecting and which positively prevent fluid loss.

Bowen Power Swivels are available in two types. Type B has a constant gear reduction between the Fluid Motor and the Drive Sub and is designed primarily to provide the power for the internal cutting and other light duty rotary operations. Type C has a two speed gear shift and is provided with a more powerful gasoline engine and more powerful hydraulic equipment and is designed to perform medium duty rotary operations as well as internal cutting.

Byron Jackson Submits New Merchandising Plan for the Bilt-On Pump Line

The Pump Division of the Byron Jackson Co., Los Angeles, recently announced a new merchandising plan for their line of Bilt-on Pumps. These pumps are general service compact pump-motor units for all types of industrial plants.

Bilt-On pumps being demonstrated by L. C. Kimball, Pump Division Sales Manager of the Byron Jackson Co.

L. C. Kimball, general sales manager of the Pump Division, explained that the Bilt-on Pumps are designed with interchangeability of basic parts. With 8 cases, 8 motors, 9 impellers and a stock of small parts it is now possible to assemble a Bilt-on Pump that will handle capacities from 10 gpm to 600 gpm at heads up to 340 feet. There are 322 pump combinations available with the plan, according to Kimball, and the units are particularly easy to assemble since the Bilt-on has a single shaft common to both pump and motor. For certain capacities and heads, the impellers need to be machined from 1-12 degrees but no other work except assembly is required to meet the ranges described above.

A complete sales and engineering manual with graphical solutions for assembly of the basic parts is supplied to jobbers and dealers. The Company also reports that there are some districts open for Bilt-on franchises.

Bowen Trailer Mounting

Bowen Power Swivels are available with or without trailer mounting. Trailer mounting, however, provides the operator with conveniences of untold value and with insurance against loss or damage to parts of the assembly.

Careful planning has enabled the storage of Bowen Power Swivels completely within small compact trailers that can be towed easily by light truck and located easily at any required point. A heavy canvas canopy, zipper equipped for fast installation and removal, protects the unit from adverse weather conditions. The Prime Mover Unit, the heaviest portion of the Bowen Power Swivel, is installed permanently within the trailer and need never be removed in order to operate the Bowen Power Swivel. Ample space is allotted for storing the Swivel Unit and the Control Unit and Hose Reels are provided to facilitate storage of the hoses. Space is also allotted for accessory items such as Subs, Tool Box and Swivelling Hose Connections.

Oil Base, Inc., Appointed Koebelite Distributor

Oil Base, Inc., Compton, California, manufacturers and distributors of Black Magic oil base drilling fluid, has been appointed national distributors for Koebelite Diamond Bits, one of the newest developments for coring in hard areas. Koebelite Diamond Bits have been used successfully in the mining industry for many years, and recent tests have proved their adaptability in petroleum drilling operations.

With branch offices in Bakersfield, Long Beach, Ventura, Midland, Houston, Lindsay, Oklahoma City and Vernal, Utah, Oil Base, Inc., plans to introduce Koebelite Diamond Bits through their sales and service engineers in these areas.

Midway Fishing Tool Introduces New Cutter

A new piece of equipment is announced by Midway Fishing Tool Company of Long Beach, Taft, and Bakersfield. The new tool, known as the Dumble Outside Drill Pipe and Tubing Cutter, is designed to speed up and simplify cutting operations in connection with fishing jobs.

In use, the cutter is run into the hole with the cutter spring not compressed. After reaching the desired point over the pipe, the tool is pulled up to the next collar or tool joint and the cutter tripped, at the same time compressing the spring. The cutter is then lowered to the desired position and the cut made. Upon completion of the cut, the fish rides out on the cutter knives. Additional information on this tool may be had by writing Midway Fishing Tool Company, Long Beach, Bakersfield or Taft offices.

Seal Beach Try Redrills

Development efforts of Marine Exploration Co. offshore Seal Beach have met with some difficulties. During operations at 6,702 ft., drill pipe stuck. Fish was recovered to 4,880 ft. and well plugged for redrilling, which has reached 4,500 ft. The venture is whipping at a high angle in order that bottom will terminate about a half mile from shoreline. The well site is in Sec. 11-5s-12w, Orange County.

(Continued from Page 11)

unimportant in determining the efficiency of a water flood.

F. M. Carlisle, International Cementers, Inc., described a subsurface flow rate indicator and its application. This device, the author stated, makes it possible to determine accurately the points or zones of fluid entry in producing wells and the points or zones of fluid exit in injection wells. Fluid movement of any nature will be indicated, it was claimed. The equipment was described as being essentially a turbine, the rotor of which is turned by fluid movement in either direction. The rotation of the runner interrupts an electric circuit and these interruptions are indicated at the surface on an electronic indicator and counter. The electric current is carried in a single conductor armored cable similar to that used in gun perforating. The surface indicator and counter is a vacuum tube circuit which will indicate as high as 3,600 interruptions per minute. The author stated that results to date indicate that man sub-surface anomalies exist which are not suspected from surface conditions at the time.

Unfortunately photographs were not available of L. R. Rodgers, Vice-Chairman, Los Angeles Basin; K. E. Grigsby, Vice-Chairman, San Joaquin Valley; R. L. Patton, Vice-Chairman, Coastal; D. S. Johnston, Program Committee for Drilling Sessions, and J. A. Moore, Vice-Chairman, General Arrangements Committee.

Nomads Wing Ding Set for July 16th

President Fred Ripley of the Los Angeles Chapter of Nomads has announced that the Annual Wing Ding will be held on July 16th at the Lakewood Country Club, Long Beach.

The schedule for the day will include the regular golf tournament, a horse shoe pitching tournament gaming, dinner and floorshow.

George L. Trembley has been appointed chairman of the golf committee, Ray L. Humphreys has been appointed chairman of the gaming committee, and George M. Anderson chairman of the prize committee.

May Meeting Coalinga-Kettleman Chapter A.P.I.

The regular Dinner Meeting of the Coalinga-Kettleman Chapter A.P.I. will be called to order by Chairman C. W. Townsend, 6:30 p.m., May 19, 1948.

A get-to-gether, an excellent dinner, and meeting will be enjoyed by some two hundred members and guests at Polvadero Country Club, Coalinga and Avenal. Dinner tickets will be $1.50 each.

A timely talk and sound film will be presented by Mr. W. B. Curtis, Manager Public Relations, General Petroleum Corp., Los Angeles. Mr. Curtis is also Vice Chairman of Dist. No. 5 A.P.I., Public Relations Committee. The title of the talk will be: "The Petroleum Industries Public Relations Program;" an informative as well as a timely subject—dealing not only with the relationship between the Industry and the general public, but also the part the industry plays in our economic and social well being.

There will be a paper delivered and accompanied by slides; such paper to be delivered by Mr. Lloyd Calhoun, Engr., McCullough Tool Co. Subject, "Electronics in Oilwells."

The Coalinga-Kettleman Chapter knows that there will be a good turn-out by local members, and extends an invitation to the statewide industry.

Tests Drill

Western Gulf is drilling ahead at 775 ft. with Spencer A-U. S. No. 18-34, a wildcat in Sec. 34-28s-20e in the Bacon Hills. Seaboard Oil's No. 58-21 in Sec. 21-28s-20e is making hole at 7,585 ft.

McKittrick Project Digs

Signal Oil & Gas Co. is prospecting on down at 4,352 ft. with Signal-Pike No. 1 wildcat in Sec. 10-30s-22e near McKittrick. Union Oil is cleaning out R. & K. No. 1 in Sec. 34-30s-21e. The 11¾-in. casing is cemented at 870 ft.

Instrument Maintenance

(Continued from Page 23)

The instrument man should on occasion, take the manufacturer's representative on inspection trips to exchange views on servicing procedure. These trips and conferences are helpful to both parties.

Jurisdictional troubles with other workers arise very frequently. A clear understanding should be had with the management as to whether or not the instrument man should do certain piping, make electrical connections, do drilling or machine work, and the like. Concessions must be made where general, harmonious relations may be upset. In any case, the instrument man should be able to supervise installation work, or repair work done by other departments, to insure proper operation, whether he does the actual labor or not.

It is difficult to make generalizations as to the number of instrument men required in relation to the cost of instruments, but I will hazard a few guesses. Up to about $15,000 worth of automatic control equipment requires one man, unless around-the-clock maintenance is desired, in which case three men are the minimum. Possibly the one man won't object to being called out of bed occasionally for an emergency repair. $15,000-$40,000 requires two men, or three men per three shifts. $40,000-$100,000 requires three men, four for three shifts. If plant conditions are very dirty, or the atmosphere or processes conditions are extremely corrosive, these figures should be increased. Possibly for cost of instrumentation above $100,000, one man extra for each $50,000 is a fair figure.

Shop area should require about 100 square feet of floor space for each worker, including storage space, with some extra for locker and washroom facilities if these are not available elsewhere.

Cantua Creek Project Starts

Location has been staked by Pacific Western Oil Corp. for an interesting prospect job known as White No. B-65 in Sec. 11-16s-14e in the Cantua Creek district, Fresno County.